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ABSTRACT

Resource material relating outdoor education concepts to the education of emotionally handicapped children and youth distributed at six regional workshops (New York State, 1972-73 school year) constitutes the major element of this report on workshop proceedings. Detailed resource and/or curriculum guides prepared by local workshop consultants are presented individually and cover the following eight disciplines: mathematics, language arts, physical education, science, art, social studies, music, and sensory awareness. Also included are proceedings from the 3-day planning workshop and the resulting planning guide which was distributed to all regional workshop planning committees. Regional planning coordinators and consultants are listed by region (Lower Hudson Area, Western New York Area, New York City Area, Long Island Area, Central New York Area, or Kingston Area). (JC)

Regional Workshops

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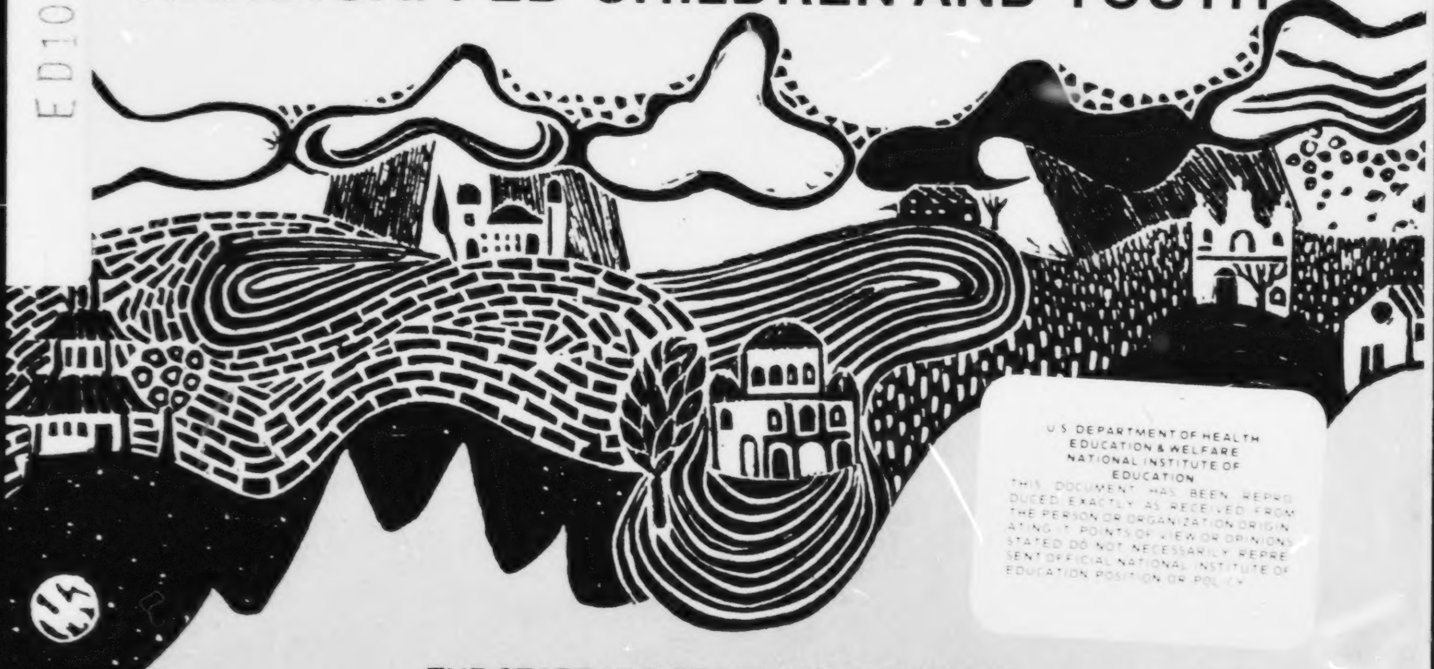
RELATING OUTDOOR EDUCATION CONCEPTS TO EMOTIONALLY HANDICAPPED CHILDREN AND YOUTH



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DIVISION OF HEALTH, PHYSICAL EDUCATION AND RECREATION
BUREAU OF PHYSICAL EDUCATION AND RECREATION
IN CO-SPONSORSHIP WITH
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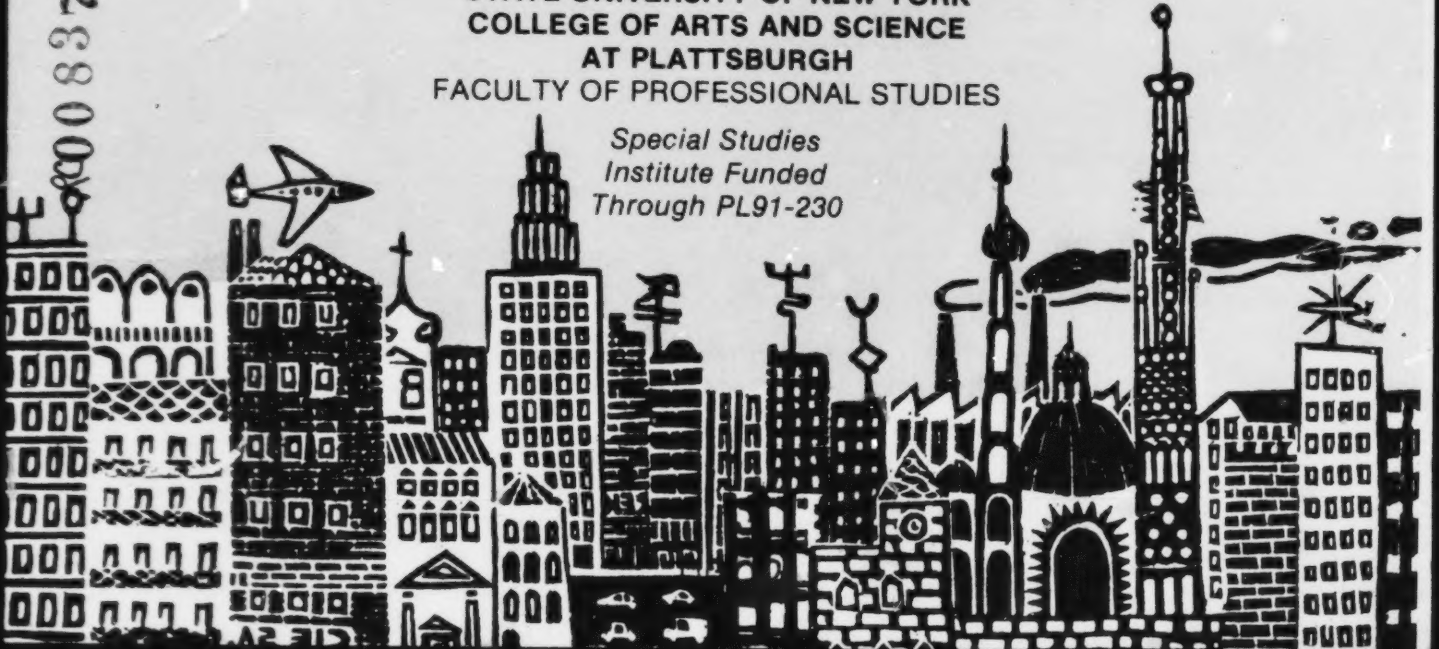

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The University of the State of New York

THE STATE EDUCATION DEPARTMENT

DIVISION FOR HANDICAPPED CHILDREN

Section for Emotionally Handicapped Children

and the

DIVISION OF HEALTH, PHYSICAL EDUCATION AND RECREATION

Bureau of Physical Education and Recreation

in co-sponsorship with

STATE UNIVERSITY COLLEGE OF ARTS AND SCIENCE AT PLATTSBURGH

Faculty of Professional Studies

PROCEEDINGS

RELATING OUTDOOR EDUCATION CONCEPTS TO EMOTIONALLY HANDICAPPED CHILDREN AND YOUTH

Proceedings from
Six Regional Workshops
Conducted 1972-73

Special Studies Institute
Funded Through
PL 91-230

PLANNING COMMITTEE

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Ernest Coons, Coordinator of Outdoor
Education

INTRODUCTION

Six regional workshops offering the major program relating outdoor education concept to teachers of emotionally handicapped and youth were offered **during** the 1972-73 school year. The real contributions of these regional workshops were many.

First the basic purpose of acquainting teachers with the concept of teaching in and from their unique environmental settings was achieved. All participating teachers did learn with a "hands-on" approach and for a brief, but lasting impression, learning became fun and meaningful. The feed back from the one-day workshops has been that a great number of teachers did directly generalize the newly acquired skills.and knowledge to their children accomplishing the hoped for success in enriching the curriculum with the outdoor education approach.

A second value directly spun off from the regional workshops was to acquaint people in a geographical setting to each other, to master teachers in the area and to unique learning resources.

Meaningful communication was achieved and is continuing between many participants and with their workshop consultants long after the workshop was held. The honest spirit of contageous enthusiasm in meeting the real needs of students with the joys of outdoor education has grown from the one-day workshop to local organizations in some areas to continue to "stay in contact and share."

Lastly one of the real values of the regional approach is the sharing of materials prepared by the workshop consultants to best communicate their interest area. This material provides the major element of our proceedings report and will serve as a valuable resource in planning and meeting the academic needs of children both the emotionally handicapped and others. The proceedings like all other aspects of the regional workshop format, represents the creative efforts and dedication of many working together and alone to serve the real needs of children with first hand experiences. The real evaluation of our efforts will be determined by the readers being caught by the enthusiasm of the many contributors of the proceedings and teaching in and from their environment.

Dr. Ernest Coons
Institute Director

PREFACE

The Section for Emotionally Handicapped Children feels that the outdoor education concept is a viable educational change agent. Therefore, we chose the medium of regional workshops to advance this unique method of curriculum enrichment.

The regional approach of Saturday workshops using federal funds were calculated to provide a maximum amount of "bang-for-the-buck." As a rule it is difficult to gather together over 100 teachers of the emotionally handicapped to meet on a school day for a workshop experience. The substantial cost factor for school districts hiring substitutes would have been prohibitive.

As the sheer volume suggests untold hours have gone into this Proceeding. All the Institute staffs have other professional commitments therefore necessitating a time delay in the production of the proceedings. For this delay my apologies to those Institute presentors and any others who may be been inconvenienced. However, better the inconvenience than an incomplete reporting.

Saturday workshops did draw the teachers curious enough to acknowledge that they are not knowledgeable about outdoor education and were willing to invest their own time to enrich their professional lives. The combinations of a low-cost workshop, the participants' curiosity, dovetailed with outdoor education professionals such as Irv Rosenstein and Ernie Coons produce successful endeavors. Of course the final ingredient in the success of any workshop is the caliber of the workshop leaders. In all six workshops the leaders were people who were highly selected and skilled teaching emotionally handicapped children and youth.

The above forces in motion created a commotion of concerned interest in this highly neglected area of educational enrichment for the emotionally handicapped child.

.....CHARLES MATKOWSKI

REGIONAL PLANNING COORDINATORS

LOWER HUDSON AREA

Location: Lakeside Nature Center
Spring Valley, N. Y.

Program Coordinators:

Mrs. Phyllis Williams
Union Free School District 3
226 Linda Avenue
Hawthorne, N. Y. 10532

Ms. Jane Bullowa
Ramapo School District 1
Cyprus Road School
Suffern, N. Y. 10977

Facility Coordinator:

Mr. Edward Bieber
Lakeside School
South Main Street
Spring Valley, N.Y. 10977

WESTERN NEW YORK AREA

Location: Fancher Campus
State University College
Brockport, N.Y.

Program Coordinator:

Mr. Wilfred Nash
Olean Public Schools
Olean, N.Y. 14760

Facility Coordinator:

Dr. James Gillette
Fancher Campus
State University College
Brockport, N. Y. 14420

NEW YORK CITY AREA

Location: Queens College, New York City

Program Coordinator:

Mr. George Singfield
Samuel Field YM-YWCA
58-20 Little Neck Parkway
Little Neck, N. Y. 11362

REGIONAL PLANNING COORDINATORS

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Facility Coordinator:

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Education Facilities Lab.
477 Madison Avenue
New York, N. Y. 10022

LONG ISLAND AREA

Location: Manne Ho Hills School, Westbury, L. I., N.Y.

Program Coordinator:

Dr. Charles Lewis
University of New Hampshire
Durham, New Hampshire

Facility Coordinator:

Dr. Harry Thompson
Nassau County BOCES
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Jericho, N.Y. 11753

CENTRAL NEW YORK AREA

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Program Coordinator:

Mrs. Jane Leetz
West Hill Road
Sherburne, N. Y.

Facility Coordinator:

Mr. John Weeks
Roger Conservation Education Center
Sherburne, N. Y. 13460

KINGSTON AREA

Location: Harry Edson School
Kingston, N. Y.

Program Coordinator:

Mr. Robert White
Sullivan County BOCES
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Liberty, N.Y. 12754

Facility Coordinator:

Mrs. Mary Mastin
Harry L. Edson School
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Kingston, N.Y. 12401

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Angelo, Mark	Western New York
Arnell, Teddi	Central New York
Betros, Harry F.	New York City
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Beiber, Ed	New York City
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Burgin, William	Kingston
Byler, Jayson	Lower Hudson
Carpenter, Marian	Lower Hudson New York City
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Delahunt, Michael	Western New York
Druffner, Jean	Kingston
Eakins, Don	Kingston
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Fuller, June	Western New York
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Gillette, James	Western New York
Gilmer, William	Long Island
Harmon, Thomas	Kingston
Hartman, Bertha	Long Island
Hatcher, Glen	Western New York
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Herbold, Richard	Western New York
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Moody, Helene	Central New York
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Thompson, Harry	Long Island
Vahl, Carol	Western New York
Weitzman, Rose	Long Island New York City
Westphal, Barbara	Lower Hudson
Wiggins, George	Lower Hudson
Williams, Phyllis	Lower Hudson
Zizzi, Joe	Central New York

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JULY PLANNING WORKSHOP

The results of a workshop in early summer of 1972* indicated that the real needs of the emotionally handicapped in New York State could be served in part by the outdoor education approach. The solution to this problem was to develop and offer one-day regional workshops in six selected areas of New York State. These one-day workshops would be conducted with local resources and using the skills of area consultants present a Saturday workshop for area teachers and administrators of the emotionally handicapped emphasizing the outdoor education approach. The basic objective was to present outdoor education as a method in meeting learning needs, identify human and environmental resources, and to encourage the formation of local "core" groups to teach in and from the out of doors in each differing location with emphasis on the urban child learning with his city environment.

A three-day resident workshop was conducted in mid July, 1972 for fifty selected teachers and administrators representing the six geographical areas selected for the coming regional workshops. This July workshop, held at the Valcour Conference Center, State University College at Plattsburgh, was conducted by Dr. Ernest Coons, Coordinator of Outdoor Education. This workshop was designed to permit maximum communication and sharing of experiences of the participants. It was the announced objective to plan all details, approaches, a consistent philosophical base, and common programs for the six regional workshops. And, this was to be done in just three days by people who had not met before!

The first day consisting of afternoon arrival and late evening meetings was spent in developing acquaintanceship, open discussions between the participants, a detailed review of the problem and objectives for the coming workshops.

The morning of the second day was spent in small groups formulating and recommending practices for the coming regional workshops. The areas considered and presented were:

Basic objectives of the workshop
Basic operational patterns
Recommended participants
Maximum number of participants
Recommended locations for regional workshops

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*Outdoor Education Experiences for Emotionally Handicapped Children and Youth, Proceeding Reprint, New York State Education Department, Section for Emotionally Handicapped.

Following the "feed back" of the above group the total group turned its creative effort to formulating the specifics on the planning of a "model" workshop to realistically meet the objectives presented. It was then the objective of this planning workshop to arrive at a specific written schedule serving as the guide to each of the regional workshops.

During the afternoon all participants were bused to Twin Valleys Outdoor Education Center (State University College at Plattsburgh) where sixty children were involved in an outdoor education program. This program, an ESEA Title I program for disadvantaged children, provided an opportunity for both workshop participants and children to learn and experience the outdoor education method together. It resolved for all the value and excitement of learning in and from the real world and emphasized the need for successful regional programs so more children, especially emotionally handicapped, can learn with the outdoor education approach.

An evening meeting held after our afternoon experience formulated consistent philosophical views and understandings on the outdoor education approach.

The last day of the July workshop was spent in discussing and agreeing to those recommendations made by the assigned groups. The specifics of these reports formulated the entire procedure and practices for the six regional workshops and are presented in this proceedings report. Within each group of people representing similar geographical areas an organizational pattern was resolved which continued to operate in the local area and was basic to the successful operation of the six regional workshops.

JULY WORKSHOP PROGRAM PLANNING MATERIALS

"A Guide for the Conducting of Regional Workshops," the proceedings and understandings directly resulting from the July workshop was distributed to all regional coordinators. Also all materials generated by the completed regional workshops were sent to all planning committees as an additional aid. This procedure provide maximum help in the workshop announcements, letters, planning, and with the programming of the regional workshops.

Following was the planning guide distributed to all regional workshop planning committees and copies of actual materials which will serve as examples of announcement letters and program.

Planning Guide:
GENERAL INTRODUCTION

Six regional workshops with the major theme "Relating Outdoor Education Concepts to the Teachers of Emotionally Handicapped Children and Youth" are being offered during the 1972-73 school year. Each regional committee will prepare workshops offering this theme to meet the specific needs of the region they serve, whether urban or rural. This guide has been written to offer those necessary details and understandings which will provide an additional resource for the effective implementation of these regional one-day workshops. At this writing, a three-day planning workshop for many members of the regional committees have been offered. Two of the six regional workshops have also been conducted. This guide is based on the experience and needs reflected by the two completed regional workshops.

An overview of this resource guide for conducting regional workshops traces first briefly the history and basic purposes of the regional workshop approach, then deals with the specific responsibilities of the central planning committee and the responsibilities of the regional committees. It is hoped that these understandings will provide effective operational practices for all committees and maximum opportunities to meet the real and unique needs of each region to be served.

WHY OUTDOOR EDUCATION FOR THE EMOTIONALLY HANDICAPPED

Many new approaches have been investigated by the Section of Emotionally Handicapped, New York State Education Department to offer positive effects to the learning lives of the children they serve. Discussions between this Section, specifically Charles Matkowski and Ted Kurtz and Irwin Rosenstein who represents the New York State Education Department, Division of Health, Physical Education and Recreation resulted in a decision to investigate the possibilities of using the outdoor education approach for the emotionally handicapped. A June conference was held for many selected administrators of programs for the emotionally handicapped at the State University College at Plattsburgh Conference Center, Valcour and was conducted by Ernie Coons, the coordinator of outdoor education at Plattsburgh. This three-day conference reported that the Outdoor Education Method did seem to be a viable way of offering academic programs serving to enrich the curriculum for the emotionally handicapped. The many values of learning by doing, firsthand learning in an informal natural setting, learning by practical intellect as well as academic intellect, and the required group sharing, communication and preparation appeared to meet many of the needs of this selected group of children.

It was recommended that a three-day workshop be held in July for teachers of the emotionally handicapped and teachers in the outdoor education area. If similar feelings and perceptions were developed related to the unique values of using the outdoor education approach for these children with learning needs then regional meetings would be conducted to share with others this approach to curriculum enrichment.

The group attending the July workshop agreed to conduct six regional meetings, basic operation practices and basic program program were developed at this conference.

We are now together completing our commitment to help children in our areas by affecting the teachers with the regional one-day meetings sharing the outdoor education approach. The real evaluation of our efforts can only be determined by our enthusiasm being caught by others through our regional workshops to learning by firsthand experience in their environment, rural or urban, meeting the real needs of the students.

. . . . . . Ernest Coons

GENERAL INFORMATION

Name of Workshop

The title of "Relating Outdoor Education Concepts To Emotionally Handicapped Children and Youth" must be used for all regional workshops and should not be altered.

Sponsor

.All regional workshops are sponsored equally by:

The University of the State of New York
The State Education Department
Division for Handicapped Children
Section for Emotionally Handicapped
and the
Division of Health, Physical Education and Recreation
Bureau of Physical Education and Recreation
in co-sponsorship with
State University College of Arts and Science at Plattsburgh
Faculty of Professional Studies

If any other agencies in your regional area participate in co-sponsorship, please identify them in addition to the above named sponsors for all released information.

Also, this program is made possible by federal funding and this source should be identified on your released information and listed as:

Special Studies Institute
Funded Through PL 91-230

Workshop Participants

Although the major purpose of these workshops is to provide information to teachers of the emotionally handicapped all teachers and school administrative personnel are welcome and encourage to attend. Your announcement of the regional workshop specifics should indicate this fact. It is recommended that all reservations for your regional workshop be on a "first come first served basis."

The number of participants at your workshop must be determined by facility limitations, food service limitations, and your program consultant ratio. The primary objective of each workshop is to do a quality job through excellence in programming, not the number of participants. Once the maximum number of participants for your workshop has been determined by facility and food service limitations, it should serve as a guide for consultant staffing and the cut-off point for registrations. Experience has indicated that your group can increase the enrollment of participants by 5 percent which reflects the normal drop out rate.

It is also recommended that a time table for enrollment for your region be established and announced which will reflect the following general theme. Close registration when the maximum number plus 5 percent is reached.

1. A specific number from each school in your area with emphasis for teachers of emotionally handicapped be enrolled 3 - 4 weeks before the workshop
2. Open enrollment from all schools in your area 2 - 3 weeks before workshops
3. Open enrollment from college student groups requesting attendance 1 - 2 weeks before workshop
4. Closed enrollment 1 week before workshop and predicted participation reflected to all consultants for any necessary revised planning or preparation. It is recommended that enrollment in your workshop not be allowed the day of your workshop and this fact be announced in all released information

PLANNING COMMITTEE RESPONSIBILITIES

For all six regional workshops the planning committee has been charged with the following responsibilities:

July Workshop - To conduct a three-day workshop which will provide the basic planning, staffing and objectives common to all regional workshops with those in attendance at this meeting providing the necessary input to realistically meet these needs.

Provide Program Guide Materials

Materials have been developed to assist in the operation of each regional workshop. These materials are to be found in the appendix section of this report.

General Announcement

A three fold announcement has been prepared which will provide basic format for all regional workshops. It is intended that each region will provide an insert to this announcement listing the specifics of your program. Details related to this are presented under regional responsibilities, page 10 of this guide.

Guide for Conducting Regional Meetings

This guide was prepared after the two fall workshops were conducted to learn with and from these two operations. Basic materials from these programs are included in the appendix section of this guide.

Packet Materials

Thirteen different themes are presented by graduate students who attended an outdoor education course this past summer. These reports, envelopes, name tags, and a welcoming cover letter from the planning committee provide basic packets for all participants to all regional workshops. Other resource materials which will meet local needs are encouraged to be included in this packet materials. The area is discussed under committee responsibilities, page 11.

Program Participation

The general announcement for all regional workshops indicates several areas where members of the planning committee participate in each regional program. This participation is as follows:

General Introduction and Welcome - either Charles Matkowski or Theodore Kurtz

Theme - What is Outdoor Education? - You may desire either the film, "Just Beyond the Chalkboard" or narated slides "What Is Outdoor Education." Either program will be provided by Ernie Coons if you desire and contact him.

Evaluation - At the end of the workshop program all participants should be present for the evaluation of the workshop. The group will be sub-divided and after a brief presentation either by Irwin Rosenstein or Ernie Coons, they will be requested to react to the questions presented by the evaluation form. This form is included in the appendix.

Program Planning

Members of the planning committee will be present a month or more before your workshop to meet with the coordinators of program and facilities to provide any necessary help in addition to the distributed resource materials. Also, if it is possible members of this planning committee will meet with the complete regional workshop committee and consultants the evening before the workshop. This meeting will assure that all consultants are familiar with the site,rooms, other staff and are presented a brief overview of the importance and value of their creative contribution to this state-wide program approach.

Budget Operation

It is the responsibility of the project director to supervise the budget for all regional workshops. BOCES of Clinton, Essex, Washington and Warren Counties have agreed and contracted with the New York State Education Department to operate the budget structure for all workshops.

All teachers participating in the workshop will be charged a $2.50 registration cost for the lunch meal. Your announcement should list this cost indicating that it is for meals and related costs. Basic operational costs and distributed materials are underwritten by the New York State Department of Education, Section for Emotionally Handicapped. This point should be clearly stated in your program announcement.

Budget Operation

Monies for registration should be collected by the facility coordinator and checks made payable to the facility or to the facility director. At the conclusion of the workshop expenses and monies collected will be reviewed by the project director with the coordinators of the workshop. Food service bills, related bills for facility needs, and if possible "extra" consultants paid from this money at this time. Any surplus of monies will be deposited and used for additional copies of final proceedings or deposited in the general operational fund.

A small contingency budget does exist to be used at the descretion of the project director to cover any unanticipated expenses of regional workshops. The major point is that the success of your regional meeting will be supported by a flexible budget working closely with the project director. Please do not expend any monies for items not reflected by the Regional Workshop Budget without contacting Ernie Coons before this commitment is made.

Prior Approval of Released Materials

All materials distributed by the regional workshop reflects in total all sponsors of this project. Please send copies to Charles Matkowski, Irv Rosenstein, and Ernie Coons for review and approval before it is released or included for packet distribution.

Final Proceedings

After all workshops have been conducted a complete proceeding report will be prepared by Ernie Coons and dissiminated by Charles Matkowski's office. Please be sure that lists of all consultants and academic areas offered, regional program guides, participant lists, and any other related materials are given to Ernie as soon after the workshop as possible. Three copies of this material are needed. It is expected that the proceeding report will be ready for distribution the latter part of July.

REGIONAL PLANNING COMMITTEE RESPONSIBILITIES

Site Selection

A central site that will provide basic facilities and an outdoor setting "typical" of the geographic area served by your region should be selected and appropriate number of participants established for this site. The date released for your regional meeting is firm;regardless of weather, the program will be offered. Please be sure the site selected provides for this requirement.

Program

General program guides have been released by the planning committee and are included in this report. Based on the general themes establish the time, consultants, program areas, etc. which best meet the perceived needs of your area. The sequence of themes is logical and regional planning should be consistent with the general guide. The planning committee will serve in any way possible to assure the success of your planning and preparation; contact Ernie Coons if you need any help related to this area.

Food Service

The importance of an attractive well-balanced meal offered in a pleasant setting will directly influence the success of your workshop. Every effort should be made by the coordinator of the facility working with the regional planning committee to make this lunch the best possible for our $1.85 - $2.00 per meal.

Preparation of Regional Meeting Announcement

An insert sheet to the general program announcement should be prepared by the regional planning committee. This insert should include the following:

1. Cooperating local agencies or sponsors
2. Regional staff
3. Program, dates, offerings, specific locations, consultants, costs, facility location, registration information

Mailing

It is the responsibility of the regional committee to identify, with help from Albany, schools in their area and mail announcements of the workshop which include the general announcement plus the insert offering details of the regional meeting.

Site Location

Maps and directions to the area selected should be included in all released information. If possible, signs leading to the selected site the day of the workshop, as well as identification of the registration area, should be put up. Adequate parking is a necessity which must be considered.

Consultant Selection

Ideally, the selection of consultants from your regional area to offer the expertise necessary will assure the success of the objectives of this project. Not only was your workshop a success, but personnel remain in your area to provide additional help if necessary when this practice is followed.

It is imparative for all, but especially those consultants who were not in attendance at the July workshop, to be oriented to outdoor education as a method of enriching learning at all levels with an interdisciplinary approach. The workshop is a "learning by doing" format and the end success will directly relate to what degree the participants learned and experienced directly in the outdoors the concepts being offered. Any orienting to the common philosophies or effective use of the selected site for all consultants is important and can not be assumed by the professional roles of the consultants.

Public Relations

Announcements in regional public communication media, school publications, selected mailings is vital to your participation. Experience has indicated

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that a mailing to the schools may not "filter down" to the teachers. (All possibilities should be explored to announce your workshop, mailings, radio, newspaper, teacher union newsletters, posters, announcement request to other related agencies and organizations, etc.

Packet Materials

In addition to the material provided by the planning committee, any material that can be prepared to offer help in meeting local needs would be a value. Please encourage all consultants to identify materials that can be reproduced and included in the packet. This will provide for those participants who desire information on many areas and cannot attend all sessions. If help is need in reproducing this material, please contact Ernie Coons.

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TYPICAL PROGRAM ANNOUNCEMENT

RELATING OUTDOOR EDUCATION CONCEPTS TO EMOTIONALLY HANDICAPPED CHILDREN AND YOUTH

A Regional Workshop
for
Western New York

Fancher Campus
State University College at Brockport
Lynch Road, R.D. #2, Holley, New York

November 18, 1972

General Information

As the enclosed regional workshop announcement indicates, six regional meetings are being sponsored by the New York State Education Department, Section for Emotionally Handicapped funded by Special Studies Institute PL 91-230, in cooperation with other agencies. A one-day workshop meeting will be held this month in our Western New York area for teachers of the emotionally handicapped and other school teachers and administrators interested in using the outdoor education approach to enrich the curriculum for children.

A preliminary draft mailing was sent regarding this coming Western New York Workshop the latter part of October by Mr. Wilfrid Nash, the Program Chairman. The enclosed material represents a second reminder notice indicating last minute changes and the last opportunity for you to attend this important workshop. Enrollments are on a first come - first served basis. The committee for this regional workshop have worked to develop the best program possible offering a choice of workshop sessions to meet individual needs. Your attendance and encouragement for others to attend this November 18 meeting is most appreciated.

Workshop Fees

The registration for each person is $2.50 which includes coffee at registration and the lunch. Registration must be limited to 200 participants so please register early. Facilities of the Fancher Campus offer dormitories on campus for $5.00 per night. Additional information on local motels is available if requested from Dr. James Gillette.

Workshop Coordinators

Program Coordinators
Mr. Wilfrid Nash
Olean Public Schools
Olean, New York 14760

Facility Coordinator
Dr. James Gillette
Fancher Campus
State University College
Brockport, New York 14420

Registration Form

Western New York Regional Workshop

Registration Deadline: November 11, 1972

"Relating Outdoor Education Concepts
to Emotionally Handicapped Children and Youth"

Please enroll me in the Western New York Regional Workshop. Enclosed is my check for $2.50 per person whose name appears below. (Checks made payable to Fancher Campus)

Name ____________________ Address ________________________

School ___________________ ________________________

Position _________________ ________________________

Overnight Lodging Needed on Campus at $5.00 per person ____
Send Information on Nearby Accommodations ____

Registration Form:

Western New York Regional Workshop

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School ___________________ ________________________

Position _________________ ________________________

Overnight Lodging Needed on Campus at $5.00 per person ____
Send Information on Nearby Accommodations ____

Please mail with check to:

Dr. Jim Gillette
S.U.C. at Brockport
Fancher Campus
Lynch Road
Holley, New York 14470

PROGRAM OVERVIEW

The program was designed to have a simple yet effective format. This format was based on past success with one-day workshops offered by the New York State Education Department, Health, Physical Education and Recreation Division with the State University of New York at Plattsburgh. All workshops were offered on Saturdays permitting those teachers to attend who had the interest and dedication and also eliminating the need to secure permission for a school-day conference. In total five hundred and seventy-four people participated in the six regional workshops. With the addition of the consultants and workshop staff the average attendance at regional workshops was just over one-hundred people.

PROGRAM

The program format was comprised of three major elements. The first part of the program after introductions and welcoming was to offer understandings on "What is Outdoor Education?". This program area was accomplished by films, slides, or presentations from selected speakers. Immediately following this understanding of outdoor education, a series of activities were offered so the participants could select one activity which would demonstrate by direct involvement the outdoor education method.

After lunch activities were offered that would share the skills and techniques of teaching in and from the local environmental area. This second program area was followed by small group meetings to crystalize plans for the participants to conduct outdoor education programs at their schools. An evaluation of the workshop followed which was conducted on a small group/feed back procedure. Closing remarks concluded each program along with the distribution of appreciation certificates for the regional staff.

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KINGSTON REGIONAL WORKSHOP

TOPIC: "Relating Outdoor Education Concepts to Emotionally Handicapped and Youth"

DATE: May 12, 1973

LOCATION: Harry L. Edson School
Merlina Avenue
Kingston, New York 12401

A Workshop For All Teachers

Although the major purpose of this workshop is to provide information and techniques in using the outdoors as an exciting learning resource for emotionally handicapped children and youth, all teachers and school administrators are welcome and encouraged to attend and will profit directly from the workshop.

Schedule (Consultants and Room Locations to be Distributed at Workshop)

8:30 - 9:00	Registration, Name tags, and distribution of information packets
9:00 - 9:15	Welcome and introduction of guests
9:15 - 9:30	Greeting and Overview of Workshop...Charles Matkowski, Supervisor for Emotionally Handicapped
9:30 - 10:00	What Is Outdoor Education? ... (Film overview) Dr. Ernest Coons, State University College at Plattsburgh
10:00- 10:30	Outdoor Education Site Exploration Techniques - Learning Resources are Everywhere ... Bob White, Program Coordinator, Regional Workshop in Outdoor Education
10:30- 12:30	Techniques of the Outdoor Education Method (Select Two) 1. Industrial & Vocational Education Beyond the Classroom 2. Art Education for Rehabilitation 3. Drama in the Out of Doors 4. Science Sensitivity 5. Keeping Our Sense of Wonder 6. Reading in the Out of Doors 7. Social Studies Beyond the Chalkboard 8. Ecology is Exciting 9. Field Experiences in Math 10. Utilizing Your Sensitive Senses to Enrich the Language Arts Curriculum 11. Look Toward the Sky 12. Outdoor Education In Operation
12:30 - 1:30	Lunch at Edson School Cafeteria
1:30 - 2:15	Four Sessions: Planning the Program Kindergarten - third grade; fourth - sixth grade; middle and high school; outdoor education administrative needs.
2:15 - 2:45	Evaluation - A Necessary Part of the Outdoor Education Experience

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2:45 - 3:00 Closing Remarks

Make **checks payable** to Robert J. White (Registration Fee $2.50 per person for lunch). Mail to Robert J. White, Program Coordinator, Regional Workshop in Outdoor Education, RFD #1, Gabel Road, Callicoon, New York 12723. For more information call 914-887-4051.

Name ______________________ Professional Affiliation ______________

Address: Street ________________ City__________State ____ Zip ______

OUTDOOR EDUCATION EXPERIENCES FOR EMOTIONALLY HANDICAPPED CHILDREN

Regional Workshop Program - Lower Hudson Valley
(Rockland, Westchester and Putnam Counties)

Lakeside School, South Main Street, Spring Valley, N. Y.

November 11, 1972

8:15 - 8:45 Registration, Name Tags and Distribution of Information

8:45 - 9:00 Introduction and Welcome

1. Schuyler M. Meyer, Jr.
   President, Edwin Gould Foundation
2. Samuel B. Ross, Jr.
   Headmaster, Green Chimneys School
   President, Edwin Gould Outdoor Education Centers, Inc.
3. Ted Kurtz or Charlie Matkowski
   State Education Department
   Division for Handicapped Children
   Section for Emotionally Handicapped Children

9:00 - 10:00 What Is Outdoor Education?
Select one:

1. Film - "Just Beyond the Chalkboard"
2. On site exploration to determine areas and outdoor media to be used for outdoor education

10:00-11:00 Select one of the following workshops

1. Stop, Look and Listen
   Mr. Ben Abramson
   BOCES Teacher, Secondary
   West Lake High School, Thornwood
2. Sidewalk Ecology
   Mr. L. Peter Quint
   Learning Disabilities Specialist
   Grandview School, Monsey
3. Social Studies Beyond the Classroom
   Mr. Patsy Bove
   Special Education - Intermediate
   Yonkers Public Schools
4. Field Math
   Mr. Jayson Byler
   Chief Social Worker
   Children's Service, New York Hospital
5. Multisensory Language Arts Development
   Mrs. Barbara Westphal
   Learning Disabilities, Elementary Level
   Rockland BOCES

6. Physical Education in the Out of Doors
Mr. Dee DaBrand
Director of Physical Education
Mamaroneck Schools

7. Ecological Sensitivity
Marian Carpenter
Early Childhood Coordinator of Interpretive Nature Studies Program
Wave Hill Center for Environmental Studies
Bronx, New York

8. Plant and Animal Homes
Mr. John Gaines
Coordinator of Outdoor Education and Farm Demonstration Center
Green Chimneys School, Brewster

Mr. George Wiggans
Farm Supervisor
Green Chimneys School
Brewster

Mr. Daniel Johnson
Program Coordinator and Naturalist
Edwin Gould Outdoor Education Center
Brewster

9. The Outdoors as a Stimulus for Arts and Crafts
Jane Bullowa, Teacher
Primary Unit
Ramapo I School District

Ed Bieber, Director-Naturalist
Lakeside Nature Center
Spring Valley

11:15 - 12:15 Workshop to be repeated

12:15 - 1:00 Lunch

1:00 - 2:00 Implementation Workshops
Select one of the following leaders to discuss providing outdoor education experiences within your teaching situation

Mr. Ben Abramson - Secondary
Mr. L. Peter Quint - Elementary
Mrs. Barbara Westphal - Primary
Mr. John Gaines & Mr. Wiggans - Resident School Situation
Mrs. Phyllis Williams - Science
Mr. Jayson Byler - Special Services
Mr. Patsy Bove - Intermediate
Mr. Dee DaBramo - Secondary
Mrs. Marian Carpenter - Pre-School

2:00 - 3:00 Evaluation and Closing Remarks

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Relating Outdoor Education Concepts to Emotionally Handicapped Children and Youth

Regional Workshop - Central New York
Rogers Environmental Education Center, Sherburne
April 14, 1973

PROGRAM

8:30 - 9:00 Registration, Name Tags, and Distribution of Information Packets

9:00 - 9:15 Welcome and Introductions (John Weeks & Ted Kurtz)

9:15 - 9:45 What Is Outdoor Education? Slide Presentation (Irwin Rosenstein & John Weeks)

10:00 - 11:00 Select one of the following workshops:

- Sensitivity Hike (Albert Shaw)
- The Musical Sounds of Nature (Helen Moody)
- How Nature Influenced New York State's History (Daniel Leete)
- Motivation of Reading through the Outdoors (Rick Pescatore)
- Micro-organisms in a Pond (Joe Zizzi)
- Colonial Living - What Was It Really Like (Steve Parks)
- Arts and Crafts: A Continum for Outdoor Educational Enrichment - Rural or Inner City Schools (Gail Charboneau)
- Developing Phonetic and Oral/Written Expression through the Use of Outdoor Education (Rich Marrazzo)
- Simple Chemistry Experiments with Water (Teddi Arnell)
- A 24 Inch Field Trip (Bob Marano)

11:00 - 12:00 Make a second selection from the above list.

12:00 - 1:00 Lunch

1:15 - 2:30 Implementation Workshops: Make a selection from one of the following to discuss specific ideas and techniques for your teaching situation:

- Outdoor Education for Elementary Grades (Helen Moody, Albert Shaw, Bob Marano)
- Outdoor Education with the Jr. and Sr. High School (Teddi Arnell, Rich Marrazzo, Rich Pescatore)
- Outdoor Education and the Emotionally Handicapped (Ted Kurtz)
- Outdoor Education in Special Settings (Gail Charboneau, Steve Parks, Daniel Leete, Joe Zizzi)
- The Functioning and Administration of Outdoor Education Programs (Irwin Rosenstein

2:30 - 3:30 Evaluation of the Workshop, Closing Remarks (Irwin Rosenstein, Jane Leete, Charles Matkowski)

Please note that the above sessions include various areas and levels of education and are open to **educators**.

The registration fee for each person is $2.50 which covers the lunch fee. Anyone planning to attend MUST return a registration form by April 7, 1973. Make checks payable to Mid-York Conservation Fund.

Relating Outdoor Education Concepts to Emotionally Handicapped Children and Youth

Western New York Regional Workshop
November 18, 1972

Program

9:30 - 10:00 Coffee, Registration, Displays - Wilfred Nash
Unwind with Glenn and Judy

10:15 - 10:25 Greetings from the State Education Department
Ted Kurtz, Division of Emotionally Handicapped

10:30 - 11:30 Developing Sensory Awarness

Mini-Environment	Elizabeth B. Hellman
"Teaching the Two R's"	
Creative Dramatics	Carol Vahl
Poetry	
Creative Writing	Nina Presher
Numbers, Numbers, Numbers	
Math in the Out of Doors	Richard Herbold
It's a Young World	June Fuller
Essential Society	Geri Navratil
Multi-Sensory Walk	Patricia Mock
"Notes, Knots, and Nonsense"	
Music Goes Anywhere	Judy McGinty
Nature's Craft Cupboard	Phil Rumore
Human Growth and Interaction	
Working Together	Lee Little
Self Actualization of the Adolescent	Glenn Hatcher
Street Games	Deborah Misztal
See Science	Michael Dellahunt
Dick and Jane	
Go Look and See	Phyllis Smuckler
Nature Undisciplined	Jim Gillette

11:30 - 12:30 Lunch, Displays

12:30 - 12:55 What Is Outdoor Education - Film
"Pandora's Easy Open Flip-top Box"

1:00 - 2:15 Developing the Skills and Techniques in the Out of Doors

2:30 - 3:15 "Evaluation - A Necessary part of the Outdoor Education and this Workshop"

3:15 - 3:30 Closing Remarks
Host Officials
Ted Kurtz

RELATING OUTDOOR EDUCATION CONCEPTS TO EMOTIONALLY HANDICAPPED CHILDREN AND YOUTH

New York City Regional Workshop

Program Overview

8:30 - 9:00 Registration, name tags, distribution of information (Location - Cafeteria)

9:00 - 9:30 Instructions and Welcome - Charles Matkowski or Ted Kurtz, N.Y. State Division of Handicapped Children, Section for Emotionally Handicapped Children

Dr. John Loret or Dr. Stan Winters, Queens College

9:30 - 10:30 What is Outdoor Education?

Ernie Coons, Coordinator of Outdoor Education, State University at Plattsburgh

George Singfield, Director of Special Services Programs, Samuel Field YM-YWCA, Little Neck, N. Y.

Film: "Just Beyond the Chalkboard" and/or slide presentation

Each person will present an overview of outdoor education, its involvement and function as a viable teaching and learning approach. Select one to attend.

(Location: The Dome and Social Science)

10:30 - 11:30 Select one of the following workshops. Select freely, the same workshops will be repeated for the second hour.

1. Field Math - consultant to be announced
2. Ecological Sensitivity - Marian Carpenter, Early Childhood Coordinator of Interpretive Nature Studies Program, Wave Hill Center for Environmental Studies, Bronx, N.Y.
3. Music is Everywhere - Mike Lipka, Teacher of Emotionally Handicapped, P.S. 80A Rochdale Village, Jamaica, N. Y.
4. Interdisciplinary Approach to Environmental Education - Harry Betros, Associated Director, Education Services High Rock Park Conservation Center, Staten Island, N.Y.
5. Urban Resources for Arts & Crafts - Rose Weitzman, Teacher of Emotionally Handicapped, Greentree School, Nassau County BOCES
6. A Piaget Approach to Found Objects - Edity Marks, Senior Teacher, P.S. 2448, (Blueberry), Brooklyn, N.Y.
7. Language Arts Through Outdoor Experiences - George Singfield, Director of Special Services Programs, Samuel Field YM-YWCA, Little Neck, N. Y. and Ginnie Nebel, Teacher of Emotionally Handicapped, P.S. 719, Ridgewood, N.Y.
8. Sidewalk Science - Claudine Johnson, Team Leader, P.S. 169M, New York, N.Y.; Phil Noyce, Teacher, P.S. 169M, New York, N.Y.; Sue Ann Schustik, Teacher, P.S., 169M, New York, N.Y.; Tom Vogenberger, Teacher, 169M, New York, N.Y.
9. Social Studies Beyond the Classroom - Ed Bieber, Outdoor Education Coordinator, Lakeside School, Spring Valley, N.Y. 10977.
10. The City as a Resource Center - Peter London, Chairman Art Educator, Southeastern Massachusetts University, North Dartmouth, Mass. 02747

Program Overview

11:30 - 12:30	Workshops to be repeated
12:30 - 1:30	Lunch in the Cafeteria
	Please return to our working sessions promptly after lunch. Thank you.
1:30 - 3:00	Planning the Outdoor Education Program Choose the level which best meets your teaching programmatic interest:

Preschool
Primary
Intermediate
Upper elementary
Secondary

This segment of the program relates to helping you clarify questions, get resource information and gain follow-up consultative help.

3:00 - 3:45	Evaluation - a necessary part of the outdoor experience of this Workshop - Ernie Coons, Leader
3:45 - 4:00	Closing remarks - Host officials Charles Matkowski or Ted Kurtz Irwin Rosenstein, Associate, Division of Health, Physical Education and Recreation.

All those involved in the education of children are welcome to attend.

RELATING OUTDOOR EDUCATION CONCEPTS TO EMOTIONALLY HANDICAPPED CHILDREN AND YOUTH

Long Island Regional Workshop

Program

8:00 - 8:30 Registration

8:30 - 9:00 Greetings - Dr. E. Coons, Mr. C. Matkowski, Dr. I. Rosenstein

What is Outdoor Education? Dr. Gus C. Zaso, University of New Hampsire

9:15 - 10:00 Slides and Narration - Dr. E. Coons, State University College, Plattsburgh

The Outdoors As a Learning Laboratory
(First morning workshop)

Title	Presenter
Arts & Crsfts in Nature	Mrs. R. Weitzman
Bushcraft	Dr. C. Lewis
Games for Handicapped in Out of Doors	Dr. M. Thompson
Marine Science	Mr. N. Skliar
Mathematics	Mr. Moore
Movement & Music	Mr. W. Schaefer
Multi-Sensory Language Arts	Mrs. B. Hartman
Photography	Mr.Langan, Mr. Gilmer
Science Out of Doors	Mr. Brody
Social Studies	Mr. Pontieri

11:30 - 12:30 Second Workshop Period, Repeat of First Session

12:30 - 1:15 Lunch

1:15 - 2:30 Involving the Administrator Overview

Primary - Mr. Singfield
Elementary - Dr. Feniger
Secondary - Dr.C. Lewis

2:45 - 3:15 Evaluation - Dr. E. Coons

3:15 - 3:30 Closing Remarks - Dr. Lewis

Purpose of Workshop

Six regional workshops with the major theme "Relating Outdoor Education Concepts to Teachers of Emotionally Handicapped Children and Youth" will be offered during the 1972-73 school year. The purpose of these workshops will be to present in a general way basic understandings and techniques to use the outdoors, both urban and rural settings to enrich the curriculum for emotionally handicapped children.

Although the major purpose of these workshops will be to provide information to teachers of the emotionally handicapped, all teachers and school administrative personnel are welcome and are encouraged to attend. All reservations are on a "first come first served" basis so please reserve early.

Each one day workshop was developed by area committees working with the planning committee and will offer a "learning by doing" workshop emphasizing skills to meet local needs.

The learning approach for all workshops will be a "field approach" and will take place regardless of weather changes. Please dress in field type clothes prepared for your local weather so all participants can directly take full advantage of the self-discovery approach vital to the outdoor education method of learning.

EVALUATION

At the final meeting of all regional workshops the participants were grouped in 8 - 10 per group. Evaluation forms were distributed to each group and both the questions were reviewed as well as a presentation was offered emphasizing the need, value and techniques of evaluating all outdoor education programs.

The following represents a summary of the expressed agreement for all workshops:

REGIONAL WORKSHOP EVALUATION

Please respond to the following questions and record your answers in the order that best seems to represent your group's feeling. An example of this would be, if many members of your group show similar perceptions this should be listed first then list in similar fashion all other reactions. Your help in completing this evaluation is appreciated and will be used to strengthen other regional workshops.

1. Were the announcements of this workshop effective or should they be done in a different way? Please comment.

   Generally, it was felt that announcements of the regional workshop did not "filter down" from the mailings sent out to the schools. Although attempts were made to employ mass media communications much more could and should have been done in this area.

2. Did you feel the basic administrative pattern of this workshop was effective? Please comment.

   It was agreed that the informal operational pattern permitting selections was excellent. All felt they functioned effectively and appreciated using a "typical" school site in the area, rather than areas not normally available to school groups. All wished there was more time, many suggested an overnight, two-day workshop.

3. Did you feel the general program of this workshop was effective? Please comment.

   Participants felt selections and presentations were excellent. Most expressed that they wished sessions were longer and had greater opportunity to attend more than they could. The distributed materials were felt to be helpful and a strong plus of the workshop.

4. What do you feel was missing from the program of this workshop that should be included in the future regional meetings?

It was felt that greater emphasis should have been on urban settings as the base for the outdoor education activity. Again it was expressed that more time was needed as appetites were just wetted, not satisfied.

5. What was the most beneficial part of the program offered here that you feel should be included in future regional meetings?

The reaction to this question varied from workshop to workshop but always included those activities offered that were presented directly in the out of doors with practical application and techniques meeting the real needs of the teacher.

6. Specifically how will you use the understandings and skills offered by this regional meeting when you return to your professional responsibilities?

The major feeling expressed was that the many, many practical ideas resulting from this workshop could and would be used in meeting the educational needs of the children served. Never expressed was the idea that either the outdoor education method or techniques as presented in this workshop could or would not be used by the participants!

7. Please list any other reactions you wish to share with the Planning Committee not covered by the above questions.

A general feeling of expression of appreciation to the workshop committee was reflected with the underlying theme, "why can't all professional workshops be as practical and as enjoyable as this one!"

The following represents materials distributed at one or more of the regional workshops as part of the registration packet materials.

MATHEMATICS

MATHEMATICS IN THE OUT DOORS

by: Francois Barcomb, Pam Smith, Tom Ashbee

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I. A. Definition:

We are developing mathematical concepts through the outdoors in the areas of measurements, time, estimation, geometry, counting and fractions showing the practical application of math using "mother nature".

B. Reasons:

1. complaints of teachers on all levels
2. lecture and demonstration approach indoors unsuccessful
3. rote learning- boring, impractical, irrelevant
4. topics often avoided because of negativeness of both students and teachers- past experiences very unstimulating

C. General Objectives:

1. Make mathematical concepts relevant to student's needs and desires through use of out of doors
2. Stimulate learning so students will explore and experiment on own
3. Provide opportunity to make mathematical instruments
4. Applying their ability to use instruments properly and to advantage
5. Develop concept of estimations through varied concepts

II. A. Measurements

1. Demonstrate abstract concepts of measurement
    a. acre
    b. cord
    c. boardfeet
    d. heights of trees- Biltmore stick
    e. associative, communative and distributive principles

2. Reinforce common concepts of measurement
    a. Units of measure (feet, yards, miles, etc.)
    b. use measurement to find distances and other measures of volume, weight, etc.
    c. direction

3. Illustrate measurement by use of games and exercises
    a. refer to activities

B. Time

1. Demonstrate abstract concepts of time
    a. seasonal
    b. daily (morning, noon, night)

2. Reinforce common concepts of time
    a. units of time (seconds, minutes, hours etc.)
    b. plant growth within specified length of time
    c. animal growth within certain time
       e.g. tadpoles to frogs, eggs to chickens

  3. Illustrate time using games and exercises
     a. refer to activities

C. Estimation

  1. Demonstrating abstract concepts of estimation
     a. sizes
     b. distances
     c. numbers (sets)
     d. time
     e. speed

  2. Reinforce common concepts of estimation
     a. estimating totalness of specific values
        1. sums
        2. products
        3. differences
        4. quotients

D. Geometry

  1. Demonstrate abstract concepts of geometry
     a. various shapes
     b. angles (triangulation, direction)

  2. Reinforce common concepts of geometry
     a. types of polygons
     b. relative sizes of shapes (nature objects)

  3. Illustrate geometry through games and exercises
     a. refer to activities

E. Counting

  1. Demonstrate abstract concepts of counting
     a. sets (union and intersections)
     b. time and distance

  2. Reinforce common concepts of counting
     a. basic numerals
     b. number counting (sticks, pebbles)

  3. Illustrate counting through games and exercises
     a. refer to activities

F. Fractions

  1. Demonstrating abstract concepts of fractions
     a. arithmetic series
     b. comparisons of fractions (grater or lesser)

  2. Reinforce common concepts of fractions
     a. operations of fractions (div., mult., add, subtract and reducing)

  3. Illustrate fractions through games and exercises
     a. refer to activities

III. Activities:

The following activities may be applied to more that one area depending on the student, teacher and the situation.

A. Measuring

1. measuring acreage using string, pacing, students' bodies tapes
    - a. rural areas-woods, fields, playgrounds
    - b. urban areas-parks, playgrounds, shopping center parking lots

2. measuring a cord
    - a. rural- cutting logs, limbs (available wood) stack into a cord (4' by 8')
    - b. urban- rolling newspaper and using cardboard tubes to stack into cords

3. measuring boardfeet
    - a. rural - using biltmore sticks, tape measure to measure trees
    - b. urban- same equipment to measure trees in park, wooden telephone poles, building columns

4. measuring the height of objects
    - a. rural- using biltmore sticks, triangulation on trees, schools, flag and telephone poles
    - b. urban- same as above

5. measuring by use of the associative, communative, and distributive principles
    - a. rural- pacing off in one direction will equal the distance of return in the opposite direction- communative

      associative: x----------x---x
      a b c
      distance from A to B plus distance from B to C equals distance from C to B plus distance from A to B.

      distributive:
      tax on a tent plus tax on an ax equals tax on the sum of the tent and ax.
      also measuring through planning a camping trip- using principles on costs of outdoor equipment

    - b. urban- instead of camping trip, go to a supermarket or dept. store- refer to above

6. using units of measure
    - a. rural- measuring school building, grass area by feet and change into yards (how many lengths of schools will make a mile?)
    - b. urban- measure sidewalks, parking lots, schools and do the same as above

7. measuring by distance, volume and weights
    - a. rural- using various liquid and dry measures to show relationship between units

example measure quarts and gallons of pond water, pints of wild berries and/or fruits make up recipe using natural foods

b. urban- using same application as above measuring water in park fountain, sand piles

8. measuring directions
   a. rural- wind or stream velocity- making hand made anemometer and gadget for flow of water
   b. urban- same as above except for stream use fountain or possibility of hydrant

B: Time

1. Seasonal
   a. changes in plants and animals from fall to spring to fall again
   b. changes in clothing of students from one time of the year to another, along with changes in temperature

2. Daily
   a. observe animals or plants at various times of the day to see changes
   b. visit parks or school area to observe changes in plants and animals from morning til night

a=rural
b=urban

3. Units
   a. set up an agenda for a field trip or excursion- working with time units
   b. plan or draw up the daily routine

4. Plant and Animal growth
   a. plant seeds to observe growth over a period of time
   b. observe young animals growth to maturity

C: Estimation

1. Sizes
   a. estimate sizes of trees in a plot
   b. estimate the size of a lamp post

2. Distances
   a. estimate distance between two points and check the measurement
   b. estimate length of blocks, halls

3. Number sets
   a. estimate the number of trees in an area
   b. estimate the number of people in a crowd

4. Time
   a. estimate a time to run in a set distance

5. Speed
   a. estimate speed of a car or bike over a set distance

6. Operations (sums, differences, products, etc.)
   a. estimating amount of bread for sandwiches and total cost of a field trip to be taken by students

D. Geometry

1. Shapes
    - a. study geometric patterns in animal markings and patterns used in nature (honeycombs)
    - b. shapes of buildings, sidewalks, windows, lamposts.

2. Angles
    - a. use protractors to find angles of inclination of trees, buildings.
    - b. same as above

E. Counting

1. sets
    - a. finding the number of types of plants found in a small area by throwing a hoop and observing the inside area.
    - b. use lawn, driveway with the above.

2. time
    - a. set off a rocket and let some students time the launch.
    - b. same as the above, but doing this in a large area.

3. basic numerals
    - a. make numerals from objects they find outside.
    - b. look at house numbers, street signs etc.

4. number counting
    - a. use sticks, pebbles, trees in a certain area
    - b. use sidewalks, stones to count

F. Fractions

1. arithematic series
    - a. observe leaves on certain plants and relate to fibonnacci sequence
    - b. same as the above.

2. comparing fractions
    - a. show that some fractions are greater or less than others by using leaf veins.
    - b. split up apples, candy bars, etc.

3. operations
    - a. what fractional part of the group have blond, black, or brown hair.
    - b. same as the above.

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SOME RANDOM THOUGHTS ON TEACHING MATHEMATICS IN THE OUTDOORS

BY: William Miller

The key for success in teaching in both the classroom and the outdoors is that your subject is both relevant and fun. This is especially true in the field of mathematics. Relevance is a built-in advantage in teaching in the outdoors. At the same time math in an outdoor setting can be made to be so much fun that children will not even be aware of the fact that they are learning. If you will let your mind wander with mine through the various areas of mathematics as well as the different settings of the outdoor scene you can explore an endless stream of fun ideas on teaching math.

Letting your mind wander to explore the primary level in research of ways to help teach basic mathematic concepts. The outdoors can be a great asset in teaching these basic concepts to large groups.

-counting and placing items in groups. Stones, leaves, trees, acorns can be used.

-measuring skills
1. Body parts as a standard unit
2. Guessing distances between two points
3. Pacing--how many steps did you take to walk between those points
4. Making your own standard of measure
5. Mapping out an acre or portion thereof

-basic compass
1. Four directions and the way a compass works
2. Direction cubes--on each side of the cube have one of the four directions plus a number. On each roll of the cube child takes that number of steps in that direction
3. Listing direction of objects

-geometric figure finding
1. As they exist in nature
2. Buildings and various apparatus
3. Making your own with stakes and twine

-tree ring study
1. Counting of the rings
2. Comparing the growth in different years

-items in nature as counters and various signs
1. Using acorns, nuts, twigs, etc., as your counters
2. Setting up greater than, equal to and less than lessons outdoors. Twigs can be used to make >, < and = signs as well as the number.
3. Using data sheets to put number of clouds you can see, trees in a given area, buildings, etc.

As you explore the outdoor scene for ideas to use in the intermediate level we should consider an important point. Our intent is to explore the field of mathematics, but at the same time we must realize the other important areas of education that we fringe on. We must consider the social aspect of working together in the outdoors. Collecting data and other such aspects demands considerable social interplay between the participants. Other projects such as acre plotting can be used in conjunction for example with a science project. By going into the history of various methods of vertical triangulation we can also involve the social sciences in our lesson. Lastly by having the participants record and discuss the findings we involve language arts. Let us now move on.

-Pace Map Making
1. Find out what distance you cover with each step
2. With a compass you can plot distance and direction and make maps of your area
3. Can be applied to buildings

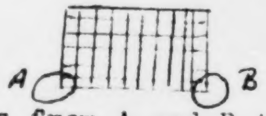
-Diameter Tapes
1. Using tapes with diameters measured on them for measuring diameter of trees
2. For use in averaging, find the average size true or pole in your area
3. For making tape work from C = d d = c , contact of 3.14. Every 3.14" on tape - 1 inch of diameter.

-Biltmore Sticks
1. Measuring the diameter of tree
2. Compare the number of saw logs in the tree
3. Using the number of saw logs with the diameter of the tree we find the number of board feet
4. Using an arbitrary cost per board foot we can find the tree's worth.
5. Substracting the cost of cutting the tree down we can find the profit.

-Graphing
1. Using the results from either the diameter or heighths of the measured objects we could construct various graphs.

-Compass work
1. Familiarization with instrument
2. Gradients and direction
3. Coordination with pacing for map making
5. Treasure hunts using lists of distance and direction
6. For advanced groups, contour mapping

-Ranger Station
1. Make a 12" square grid with an alidade at each of the two lower corners



Mark off 90° on each alidade as it is only 1 quadriant

2. Give coordinates from A and B to locate "fire" on grid

3. Move outside and use a 12 foot square grid. Using the large and small grids so that each group is separate you check to see if the location of the coordinates match each other.
4. With an advanced group you can use 4 grids together to form 4 quadriants. By placing the alidades into the center of the quadriants you can work with a full 360°.

-Triangulation for Vertical Distance
1. Muddy water method - using similar triangular through reflection of tree into a pot.
2. Shadow method - proportion of length of shadow of known object to length of shadow of known object to length of shadow of the unknown.
3. Staff method - similar triangular with sighting across a staff
4. Inch to foot method - similar triangular
5. Pencil method - standard units of measure
6. Biltmore stick - mentioned previously
7. Isosceles triangle method - straw on top of a cut of an isosceles triangle

-Triangulation for inaccessible area (across pond or stream)
1. 45° - 45° - 90° triangle
2. Hat rim method

-Stream work
1. Volume of a stream
2. Plotting its course
3. Speed of flow

These are just some random thoughts on the subject. By using these thoughts as an inspiration and a guide you will be on your way in using one of the greatest assets - the outdoors - that education has. Your imagination will be the limit on how much you can use the outdoor setting in teaching mathematics in a fun and relevant light.

MATHEMATICS

by Gerry Moore

Mathematics is all around us! Our environment, whatever it may be, is rich with mathematical problems, patterns and relationships.

It is our responsibility to help our students, "open their eyes", See . . . explore . . . and discover . . . the world about them.

Following are some sample activities that might help our students develop a keener awareness, appreciation and ability to solve problems related to their environment.

1. Walk to a local intersection. Record, in at least two ways, the number of cars, buses, trucks and people that pass by in a 15 minute period.

Make some estimates first. Organize and graph your data. What generalizations can you make? How would you use such data with your students?

2. What color and what make car do you think are the most common? Walk to the parking lot. Make a survey of the colors and manufacturers of the autos you see. Record your data. Compare this to a sampling of autos that pass the school in a 10 minute period. What generalizations can you make?

Make a list of questions related to this data you might use with your students. eg. How would a car manufacturer use this information? What percentage of the cars were blue, red . . . Ford, Chevy, . . . Foreigh, Domestic, . . . If you sampled three (3) times as many cars as you did, how would you expect your data to change?

3. Survey at least 20 people concerning something you wish to find out. Record your findings in two different ways. What generalizations would you make from this data.

4. Estimate the height of 6 trees and/or buildings in this area. Now find out. Use another method to verify your findings. If you have difficulty finding two ways, find someone to help you.

5. Use only this index card to measure the length of at least 6 different objects. ESTIMATE FIRST. Make the chart below and record your findings in inches, feet or yards.

OBJECT MEASURED	ESTIMATE	ACTUAL LENGTH	DIFFERENCE

6. In feet, yards and/or meters, estimate and then find out the perimeter of these things:

a. our classroom
b. this building
c. the parking lot
d. ____________
e. ____________

7. Estimate the number of cars that will fit in the parking lot. How did you do this?

8. Go on a treasure hunt! Do not bring any standard measuring devices.

Find 2 things that are shorter than 6 inches
Find 2 things that are shorter than a foot
Find 2 things that are almost 2 feet
Find 2 things that are rectangular
Find 2 things that have acute angles
Now find something else and tell us something special about it.

Complete a chart like this:

	Item 1	Item 2	Actual Measure
> 6 inches			
> a foot			
2 feet			
Rectangular			
Acute angles			
Anything			

9. Measure the circumference and diameter of 8 circular objects you can gather. Record your data on a chart like this. What discoveries did you make?

Object	Diameter	Circumference

10. Estimate first. What is the area of the window glass in the cafeteria building? Record how you found out. How close was your estimate?

11. Sample three (3) locations no smaller than 100 square yards. Record the amount and kinds of litter strewn about. How would you use this information?

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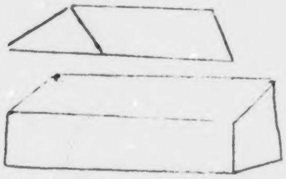
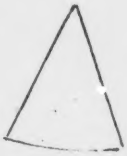
12. How many blades of grass in a square foot of lawn? Tell how you found this out. Are there more weeds than grass?

13. One definition of mathematics is the study of patterns and relationships. Take a walk and observe the patterns numerical and non-numerical in this environment. Record these by either drawing them or describing them.

14. Make a list of shapes in this neighborhood that look like these:





15. Take a walk - look for shapes that are symmetrical. How many axis of symmetry do they have? Keep a record of what you noticed.

16. Estimate the time it would take you to walk the length of the corridor; run the length of the corridor. Now actually time yourself. Do this for several distances. Always estimate first. Record your data. Think about how long it would take you to walk to 42nd Street, Manhattan; Miami? Consider some arithmetical word problems you and your students might develop using this data.

17. Devise a non standard timing device. Use it to keep track of the time it took your partner to hop from one tree to another and back. Now convert this to standard time. Try some other activities like this.

18. Take a 15 minute walk with a partner. Keep a record of all the numerals you saw and their uses. What are some numerals that are important to you?

19. How many bricks in the front wall of this building? Estimate first. Record your way of finding out. If you were a builder, how many bricks would you order for the outside of this building. How did you decide this?

20. Here is an array of dots . . . . . .

. . . . . .

. . . . . .

How does this arrangement help us to better perceive numbers? Take a walk around and look for arrays in their environment. How would you use these arrays with your students?

21. Find the temperature in both Fahrenheit and Centigrade of at least 6 different locations. Record your findings on a chart. Compare these temperatures in as many different ways as you can. Try the same thing in at least 6 different locations within this building. What things did you discover.

LANGUAGE ARTS

LANGUAGE ARTS IN THE OUT DOORS

By: Chris Budd, Connie Flick, Arlene Wood, and
Florence Wekenman

The use of the art of language is to hear and understand talk and be understood, in other words, the art of communication. We need not be very skillful to hear, slightly more to talk, but comprehension and organization of one's thoughts for speaking are skills which may be learned, as are reading, writing, spelling, phonics and all other aspects of learning. Language Arts is the media of such learning. Many of our activities over lap because the area knows no limitations.

The natural child is most comfortable out of doors, unconstrained by four walls. Perhaps the discipline of learning can best begin here and be taken inside to pursue and develop. As sounds from the out of doors were heard, loved, and developed by copied musicians, so other disciplines can find their source in nature and be nurtured in the school room. Each of the following attributes or concepts may be enriched by language arts outdoors.

a. New stimuli for learning. For example, the desire to read for information.

b. Increased awareness of natural phenomena.

c. Improvement of self image by built-in success possible in outdoor programs.

d. Organization and categorization of ideas and materials.

e. Developing new methods for giving directions and skill in following directions.

f. To increase and vary verbalization.

g. Development of values -- help kids to think out different alternatives and consequences involved in decision making.

h. Creating a climate for recall.

i. Sensitizing for improved listening

j. Development of investigative techniques for research.

k. Thoughtful reading attitude for whatever purpose; information or pleasure.

We will remember that direct experiences, rather than vicarious, satisfy curiosity and lead to meaningful learning. The following are specific activities designed for enriching four areas of Language Arts: reading, listening, spelling and expression (oral and written).

a. Reading

1. Keep a log of the walk or trip.

2. Follow a nature trail, reading the signs. Then make a class trail, doing our own signs.

3. Have an outdoor poetry reading session.

4. Reading maps and making maps.

5. Visit an old cemetery. Read the epitaph, names and dates.

6. Read "How to Do It" manuals and give the class and and outdoor demonstration.

7. Make class charts of walks and trips.

8. Read about explorers and naturalists.

9. Have a treasure hunt. Give each group of three or four children printed directions from the school to their "treasure." Each group will take crayons, pencil, paper. Go out the cafeteria exit. Walk down the path to the little playground. Turn right and walk along the edge by the trees. Stop at the tallest tree. Look all around the bottom. What do you find that doesn't belong there? The treasure will be something not indigenous to the area, like a shell, a piece of driftwood, a starfish, etc. One of the group will draw it, one will label, one will write and one will tell about their trip to the class.

10. Make up crossword puzzles from vocabulary learned out of doors.

b. Listening, observing, perceiving

1. Where to go? Giving and following directions.

2. Stop and listen. Close your eyes, ball your fist, and count the different sounds you hear by extending a finger for each.

3. Be a player and a leader of outdoor games.

4. During a class walk ask children to "take a picture." Have them make a box with their fingers, look through and find the scene they like best for their picture. Let them study this small area to remember its arrangement. Then either sit down and sketch it or take their picture back in the classroom and draw it from memory.

5. Lie back in a comfortable spot, feel the earth under you and see the sky above. Watch the clouds, their movement and shape.

6. Take a tape recorder along on a trip to the woods. Sit very quietly for two minutes, then turn it on. You may record the wind, bird songs, etc.

7. Players sit in a circle. The one starting the game says, "From where I am I can see a gray birch." The next one says, "From where I stand I can see a gray birch and a black cherry." The next player repeats all the previous players have said, in exactly the same order, and adds another tree or bird. If anyone doubts the statement, he may challenge the speaker. Anyone caught unable to defend his statement drops out of the game.

C. Spelling, phonics, vocabulary enrichment

1. The root of the word ecology -- from two Greek words meaning "study of the home" opens up an infinitely greater wealth of consideration. All of the words necessary to use and understand in the out of doors give a richer vocabulary. Examples: trail, swamp, ledge, geology, shelter, fossils, poison ivy, counselor, fern, moss, glaciers -- the list is endless.

2. Proof read your own written work. If you are not sure of the spelling, ask.

3. Look around you for all the things you can find beginning with "B" (or any other consonant). Make a chart for your room.

4. What sounds do you hear? Try to put letters together for the sound of a stream, or a particular bird.

5. Riddles -- "I am thinking of a tree that begins with 'M', etc."

6. Spelling Bee -- Divide players into groups. Play the game with fall flowers, insects or trees. Hold up a flower. The first in line must name it and give an interesting fact about it. If he fails, he must drop out of line. The side having the greatest number remaining wins. It is better to commence with the most common and well known plants.

7. Nature Alphabet -- This is played with "sides." The leader names a letter of the alphabet. Each player on each side in order names a bird, flower, or tree (decided upon before starting) which begins with that letter. Anyone who cannot do so in less than five seconds is out. No one is to name an object which has already been named. The team having the greatest number of players left at the end of a certain time is the winner, or the last group to name an object commencing with that letter wins one point for his team.

8. Sound Locator -- A good woodsman can locate a sound quickly both as to direction and distance. As a preliminary training, have "it" stand with back to ten or twelve people. No person to be nearer another than ten feet. A leader points to someone who whistles. "It" turns around quickly and names the one who whistled. If correct, the whistler takes his place, or it may be scored by using the best average for ten trials. Outdoors, this may be tried by rustling autumn leaves on the ground, by wading in water, by jumping in the sand, by dropping a stone a few feet away and having the person identify the stone, by snapping a twig, by taking three steps, and so on.

D. Written and oral expression

1. Collect interesting objects for a science table. Each child will tell about what he found and why he likes it. Research the object for identifying purposes.

2. A walk to a quiet spot, a few minutes contemplation, can provide the inspiration for creative writing. The Haiku, a three line, unrhymed composition of 5-7-5 syllables, is an excellent medium for spontaneous expression. Others could be the Cinquain and Diamete.

3. Experience in nature provide the basis for written and oral expression. Walking to a stream, wading it, watching a chipmunk or the flight of a swallow, all must be experienced and observed to become a part of a person. All outdoor happenings become the basis for written and oral expressions.

4. Postcards or letters asking permission or thanking for help.

5. Labeling and identifying.

6. Preparation and participation in original out of door drama.

7. Discussions of observations.

8. Poems and stories

9. Class newspaper write-ups of outdoor experiences.

10. Interviews of conservationists..

11. Tapes describing the science table or nature walks.

12. Look for animal footprints. Make deductions and draw conclusions as to which animal made them.

13. Make foods for outdoor consumpition by following simple recipes.

14. Make simple weather charts.
15. Pretend you are a Martian landing on our planet and use different vocabulary to describe what you see. (You can't use the objects name.)

John Dewey has said that we cannot substitute a book for civilization. Alfred Whitehead warns of divorcing education from life. Outdoor education attempts to deal with realities, rather than second hand information. Language is a major tool of education; as the child progresses in language skill, he also develops in intellectual, social, and emotional capacities. He can develop well in all these areas in a rich and varied program of outdoor activities.

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CURRICULUM ENRICHMENT IN LANGUAGE ARTS THROUGH THE OUTDOOR EDUCATION APPROACH

By: Bonnie Miller

Introduction

One of the concepts of teaching language arts in the out of doors involves developing a sensory awareness of your surroundings. Through the use of the five senses, new perceptions can be developed and carried further into all aspects of the curriculum. The out of doors has proved to be one of the most interesting and fun-filled places to carry on these sensory awareness activities.

The intent of this article is to stimulate an interest in language arts and to develop the ability to communicate through the various means of expression. The suggested activities which follow will provide the teacher with a few ideas to accomplish these goals.

With this as a beginning, the realization will develop that the out of doors will offer you and your students the chance to become learners together--if you accept the challenge to explore, imagine and create, using the out of doors as a classroom.

Suggested Activities

-List sounds then classify into natural or man-made.

-Make a list of words describing one object then classify according to shape, color, texture, and size.

-An oral description of an object to be guessed by other students.

-Listen and record sounds to be compared with other members of group.

-Make a list of adjectives (i.e., rough, smooth, sharp), find or name an object and categorize accordingly.

-Tape record sounds to be used as a background for a story.

-Pupils take turns naming one thing at a time that can be seen from where they are sitting that has not been named before.

-Indepth study of a local cemetary

-Keep a record of the effects of the seasons on an adopted tree or plot.

-Observing and recording movements of an insect or animal.

-Focus on different levels of perception, how well do you see your surroundings

-Developing a list of vocabulary words and their meanings.

-Field notes

-Write a description of a snow, rain or wind storm.

- Write labels for a nature trail with the aid of a reference book.

- One sentence descriptions of an object.

- Tall tales using ant hills, mushrooms, etc., as characters.

- Write poetry - cinquains, haiku

- Similes

- Write "Did You Know" bulletins

- Examination of plants for identification

- Identifying insects through resource books.

- Alphabet game -- teacher chooses one letter and giving a brief time limit for students to write down all objects around them beginning with that letter.

- Scramble names of plants and animals then tell a fact about the plant or animal.

- Collect items in a bag to be identified by the use of senses, all but sight.

Summary

Teaching language arts in the out of doors is not a supplement to the classroom but an enrichment activity for further development of concepts learned in the classroom. A child who finds purpose and excitement in what he is doing will not only retain longer, but will produce a better product, one that is meaningful to him as well as his peers. The out of doors provides a natural, realistic setting for living these experiences.

CURRICULUM ENRICHMENT IN READING THROUGH THE OUTDOOR APPROACH

By: Sue Greco

The purpose of reading is always to comprehend written language. Reading is not inclusive of itself. It encompasses being able to express oneself effectively either orally or in written form and creatively. Reading thus forms the backbone of language arts. It is man's basic means of communicating and learning. As a result reading opens up many avenues for the child to explore.

Curriculum enrichment in Reading through the outdoor approach may be the answer to gaining the interest of the student. They will learn without the drill workbooks and learn from something that is part of their world. It is easier to relate first hand experience than irrelevant textbook topic.

The environment provides a vast resource for reading activities and an inspiration. An awareness will develop and also an appreciation for the outdoors and may lead to conservation and other fields.

Activities taken outside the confining classroom walls are of more value as a learning experience because the student will be exposed to many other subjects besides reading. Such activities as describing a cloud formation in one sentence, the feel of a tree bark, the sound of a brook or the song of a bird.

Once outside the classroom, learning takes on an exciting perspective. The experiences of the outdoors will serve well to enhance a child's creativity. His senses are awakened to the environment as an endless resource of stimulation.

-Haiku - Japanese poetry about nature, usually 17 sylables, 3 lines that convey a feeling

-Cinquain - 5 line poetry

frog	Line 1 - one word title or subject
green, slippery	2 - two words, objective
leaping,flying,landing	3 - three words, participles (ing)
glides, gracefully, upon water	4 - four words, expresses a feeling
enthusiast	5 - one word renames object

-Scavenger hunt

-Planning a field trip

-Write the history of a chosen tree, how old, the type,if any, of animals that live there, etc.

-Nature alphabet - game with 2 teams, name a bird, plant or animal that begins with the letter called. Decide on catagory before the letter is called,if wrong out of game, no duplicates.

-Visit a gravesite

-Draw a picture of outdoors and then make up story about it

-Read 1/2 a story and have child finish the other half

-Visit the local courthouse and read old wills and title deeds

-Find our local history after getting acquainted with person, places of interest.

-Write letter to Conservation Department making them aware of poor conservation practices in the area

-Follow a trail by clues

-Dramatizations

-Anograms of animals,birds, plants

-Follow-up a trip to a natural area by going to the library and have children find answers to their questions in books

-Following directions to construct an outdoor oven, weather station, etc.

-Identify, press and then mount flowers

-Experience chart, a follow up to a field trip

-Weather station log with a column for the weather saying, i.e., red sky at morning, sailor's warning, etc.

-A what is it? riddle board

-Displays or posters on conservation, ecology, etc.

-Labeling nature trails

LANGUAGE ARTS AND OUTDOOR EDUCATION

One of the problems in teaching the language arts and promoting growth in the art of reading, writing, listening, and speaking is the pupils' lack of interest. In order to encourage children to develop their capacities in the language arts teachers are more and more turning to the out-of-doors and to real life situations.

All writing and all speaking, in fact, all forms of creativity is based on experience. The more experience a student has the broader the base on which he may build further creative expression. The outdoor setting can provide the permissive and inspirational setting needed for self-expression. Talks, essays, and writings based on firsthand experience makes for better compositions than topics assigned from the textbook. Good literature is based on the firsthand experience of great authors. The best novels are lived by the author.

Genuine expression occurs when a child wants someone else to share his experience. The school may extend the child's experience, stimulate his interest, provide opportunity for discussion, and stimulate a desire to write by giving the children an opportunity to engage and share in rich and meaningful activities. This can, of course,be done in the classroom with good books, an interesting history unit, a puppet play, and many other worth-while activities. Nothing, however, creates interest and excitement like a venture outside the classroom. A hike on the schoolground, a trip to the gravel pit, a bird walk, a trip to a farm, working in the garden, beautifying the school grounds or planting a tree--all of these activities provide exciting opportunities to stimulate expression of genuine thought and interest.

In short, language is a major tool of education; as the child progresses in language skill, he also develops in intellectual, social, and emotional capacities. He develops best in all these areas in a rich and varied program of activities.

Children learn words and increase their vocabulary out of the materials of their experience. Classroom practices of memorizing long lists of words out of contexts, defining lists of words in the workbook, filling in blanks in exercises and writing themes on subjects totally unrelated to their experience is a poor approach not only to language art but to all areas of education. The out-of-doors is a classroom which provides most inexpensively a wealth of opportunities for exploration and investigation in the world in which children live. In this type of experience the teacher need not worry about stimulating children in oral or written expression; she can hardly prevent it.

Many trees, shrubs, and other objects in nature have foreign names used in identification. This is another rich experience in the language arts field still mostly unexplored.

Any attempt to list all the possibilities for enrichment of language arts instruction would be futile. The world is full of excitement and adventure just waiting to be told--both orally and written.

Some activities in outdoor education which involve the language arts--reading, writing, spelling, punctuation, speaking and conversation are:

Writing letters to parents and friends
Keeping a camp diary
Taking notes in the fields of special interest
Reading for research in the camp library
Reading for pleasure during leisure time
Telling stories around the campfire
Writing articles for the camp newspaper
Group discussions in planning and evaluating program activities
Labeling and classifying specimens
Creative writing of original poems on nature and outdoor life
Participation in dramatizations, skits and stunts.
Informal conversation at meal time and cabin time
Make signs for use in garden or farm activities
Telling personal experiences about visits to farm or school camp
Making announcements, introductions and invitations
Keeping a log of experience or a diary
Learning new words obtained from nature and conservation
Keeping field notes
Writing for a camp newspaper
Listening for sounds in nature
Oral reports to class or committees
Preparing skits and stories for campfire

While investigating various ways of utilizing the out-of-doors in relation to language arts, students may carry out activities as:

Finding a nature specimen in the woods or field and checking it out in resource books.
Listening to various bird songs and recording the sound in schematic diagrams
Reading about the local history of the area after becoming acquainted firsthand with places, people and events of historical interest.
Writing about an outdoor experience

LANGUAGE ARTS

There are two general areas where language arts and outdoor education converge: (1) the study of prose and poetry that express appreciations; and (2) the use of outdoor settings in teaching the creative use of language through oral expression and writing. In the first instance, an examination of the literature included in high school and college English courses reveals that much of the prose and poetry is centered on the outdoors or includes references to it. No field of study can contribute more to the appreciation of arts and aesthetics related to the outdoors than a study of literature. There is greater need now than ever before to develop appreciations for the wonder and beauty of the outdoors since the changing pattern of living has removed so many people from the rural setting. Consider, for example, the prose and poetry which have become a part of classroom offerings, such as the works of Longfellow, Wordsworth, Thoreau, Bryant, and Riley. Such works of art add beauty and luster to the seasons and help develop appreciations and spiritual perceptions related to the physical universe.

Secondly, many outdoor settings may be used for the expression of creativity through the writing of poetry and prose. The following verses were written in a classroom by a child who was fortunate enough to have had experiences with his family in the outdoors.

SPRING

Winter's dying
Spring is crying
To be free
Free as we shall be
When spring is here again

The flowers then will come to bloom
And snow will leave the ground
Leaf buds will come through dark brown skin,
And grass will sprout around
The birds will soon return again,
And build their nests anew,
Some hidden in the forest land,
An others in plain view

The children now play marbles
And fly their kites a high;
There seem to be an awakening
Beneath the clear blue sky--
"Tis Spring!"

Field trips and camp settings, free from the inhibitions imposed on some children by classroom procedures, are conducive to natural expression. The oral reports of field trips, the campfire sessions at camp, and the planning meetings under the trees are examples of situations where good communications may be learned effectively. Prior to or following the experiences in English in the classroom one school uses its forest as an outdoor classroom for creative writing, oral expression, and music appreciation.

TO POETS

Have you ever experienced something deeply and wished that you could share your feelings with others? Have you ever discovered beauty in the commonplace, everyday happenings of life? Have you ever observed something that stimulated thoughts that were far beyond the present events and place? Have you ever pieced together a story from a few bits of information? If you can answer yes to any of these questions, you will understand some of the background of Japanese haiku.

Haiku is a three-line, seventeen-syllable poetic form that paints a verbal picture of an experience. Often the poem describes something we may overlook or take for granted. A haiku is the poet's way of conveying his innermost feelings about the world around him.

Because the poem is short, the reader must supply much of the meaning through his own past experience. Each poem is like a pencil sketch that the observer may fill in with color or meaning. Each word that is used has a purpose. No word is used unnecesarily.

Children in the upper grades of the elementary school can find satisfaction through writing haiku out of doors. Here are a few haiku written by children in sixth grade at the University School of Southern Illinois University.

It looked like a bird
Falling through the trees; it is
Only a maple seed.
Judy Geser

Dark moving shadow
Passing over the ground
It is only me.
Judy Greer

The star-studded tree
Shudders in the moonlight
The wild wind rushes by.
Nancy Moulton

Brown bowing branches
With green rough leathery leaves
Waving in the wind.
Tim Graper

In the grass I sit
Listening to the sounds of spring
In among the shadows.
Kristen Trimble

Chasing each other
The sparrows fly rapidly
Then finally return.
Mary Beth Roska

THE SKY

As vast as the sea
As foamy as a wave
As peaceful as the break of dawn.
S. Thalman

These haiku were written at times when the poets felt a deep reverence that grew out of an aesthetic experience. They wanted to convey the beauty of life as they viewed it.

These poems, may at first, appear to express simple thoughts, hardly worth recording and passing on to someone else; but the words were inspired by emotions that went much deeper than the observation.

Nothing is too insignificant to write about if it is meaningful to the poet. The Orientals are noted for their love and respect of nature. These poems may be inspired by a blade of grass, a pebble, or a tiny insect.

Many haiku contain a word or a pharase that suggests a season - like winter's "bare branches." Usually a place is mentioned along with one or more objects.

A good haiku is hard to write because the poet must combine acute perception, creative use of words, and a framework for the reader to relive an experience based on a few suggestive phrases. Often the poet depends heavily on his senses of touch, taste, smell, sight, and hearing to convey his reaction.

The words at the end of each line do not have to rhyme. In fact, the poem does not always need to have seventeen syllables. When Japanese poems are translated into English, the number of syllables often changes. Usually the first line has five syllables; the second line, seven; and the third,five. The poem is short because it expresses that brief, fleating moment of "ah-ness" that is often only a breath's length.

The beginning haiku poet should concern himself with the essential purpose of the poem that is, to convey a clear image just as it appears at the moment of awareness. Some of the children's haiku contain more or less than seventeen syllables, but this does not detract from the visual image. Too often beginning poets sacrifice meaning for a strict form or rhyme scheme. The image must stimulate the emotions. The poem must be an expression feeling at a precise moment of time known as a haiku moment.

The writing of haiku can develop attitudes and appreciations about man's relationship with nature and the immediate surroundings. It is often difficult to "burn on" a creative writing impulse, but an environment suitable for creative writing can be provided.

Trying out various objectives to describe a tree, a cloud, or a puddle can sharpen perception. Alliteration can create pleasant sounding poetic phrases. When you feel ready, concentrate on something that captures the mind's eye, and write.

The word techniques and the nature of Japanese haiku are fare more complex than these brief statements indicate. Readers who want to know more about the art of haiku may be interested in four books published by the Peter Pauper Press in Mount Vernon, N.Y. Peter Boilensen was the translater for three of the books.

Japanese Haiku (1955-56); The Four Seasons: Japanese Haiku Series II (1958); and Charles Blossore: Japanese Haiku Series II (1968); Peter Boilensen and Harry Beha collaborated on the fourth book, Haiku Harvest: Japanese Haiku Series IV (1962).

Kenneth Yasuda's book, The Japanese Haiku: Its Essential Nature, History, and Possibilities in English with Selected Examples analysis the art of haiku in more detail. The book was published in 1957 by Charles E. Tuttle Company of Rutland, Vermont, and Tokyo, Japan.

Another good book is A Net of Fireflies, Japanese Haiku and Haiku Painting by Harold Stewart. The work was published in 1960 by the Charles E. Tuttle Company.

Still another useful book is the Moment of Wonder: A Collection of Chinese and Japanese Poetry, edited by Richard Lewis and published by the Dial Press in 1964.

Experimentation can lead to some satisying results with this poetic form. Any readers who are tempted to try it will be wise to remember that the writing of haiku is a lifelong endeavor--a lifelong striving for greater awareness and for greater appreciation of the world around us.

Reprinted from the ELEMENTARY SCHOOL JOURNAL, Volume 67, Number 1, October, 1966, Published by the University of Chicago Press with the Department of Education of the University of Chicago.

THE MESSAGE

Whirling wind drops in
Gives a message of the wild
Then passes away

HILLTOP BREEZE

Standing on a hill
A wind comes to visit me
Pushing leaves ahead

WINTER EVENING

Soft silhouetted
Bare branches cushioned by clouds
Fired by setting sun

DESERTION

Whistling wind around
Eaves of an old rotting house
Once, with man, a home

SUMMIT MEETING

On a cold sidewalk
A meeting of five faces
Understanding all

THE WIND

Restless, rattling leaves
Announce the coming of the wind
Trembling cowardly

Touching the Two R's (Reading, Writing)- Curriculum Enrichment through the Outdoor Approach

Nina Presher
Brockport Central School
Brockport, New York

The out-of-doors is the *original* school without walls. It is always the person who sees, discovers, or explores a situation who gets the most out of it. Carol Staudacher in her *Creative Writing in the Classroom* (Scholastic Book Services) says, "To kindle creativity, *reading* is just as important as *talking*. *Seeing* is just as important as *hearing about*."

What better way to enrich your Language Arts program than be moving out-of-doors occasionally? The chilren will love it, and you will soon find yourself hooked on it too.

Take your class to a city park, make a tour of your school grounds, visit a nearby wooded area. When a beautiful day presents itself, lay aside your formal lesson plans and get outdoors. Someone has said, "*Seeing* is *remembering, doing* is *understanding*." Through the use of the five senses, new perceptions can be developed and carried back in all aspects of the curriculum.

Permit the children to discover and explore. Draw their attention to sounds, sights, and objects in the out-of-doors surroundings. The out-of-doors can add a new and rewarding demension to your teaching.

The following suggested activities will give you a start. I am sure you will be able to add more as you experience this new dimension.

Reading, 'Riting

I. Personification is the granting of human characteristics to a non-human object. Use any object: tree, mushroom, squirrel, insect, flower, weed, etc. and write a story about it. The squirrel, tree, or other object tells a story about itself.

II. Write a Cinquain or Take Five Poem about an object in nature.

Line I: One Word. The object about which the poem is written.

Line II: Two Words: Two Words describing the object.

Line III: Three Words. Three words expressing action (may end in s, ed, or ing)

Line IV: Four Words. Expressing a feeling about the object. This may be a phrase or a sentence.

Line V: One Word - a synonym for the title or repetition of the same word.

In actuality, you have expose the children to:

Line I: a noun
Line II: 2 adjectives
Line III: 3 verbs
Line IV: a sentence or phrase
LineV: a synonym

Example: Deer
Sleek, graceful
Running, leaping, fleeing
Happy to be free
Buck

III. Take the class on a nature hike.

A. Gather nuts, seeds, twigs, moss, fungus, pine cones,acorns, seed pods, and similar objects to develop the sense of touch and feel awareness.

B. List the objects and write a word or words to tell how they feel. Feel bark patterns and note colors and textures.

C. Follow up by making a collage from the objects collected.

D. List the sounds one hears. Distinguish between man-made sounds and nature's sounds.

E. Describe smells in the air, smell of soil, and objects collected.

F. Describe the clouds in the sky. "Clouds are fluffy mashed potatoes." (Simile). "Clouds are swirling in the sky."

G. Describe the effects of the wind. "The long grass is ruffling in the wind." "The rocks are pushing back the wind."

H. Write sentences describing your surroundings.
"Bleached branches are sticking up"
"Pricklers are a type of weed in the ground with pins"

I. Play an alphabet games. Select a letter and list all the objects around you that begin with that letter.

J. Give an oral description of an object. Children will try to guess. Let them do the describing after the initial start.

k. List all the live things you see around you, or have seen on the hike.

L. Writing sentences telling about the kind of day it is. Include weather, surroundings, how you feel.

> "I was really feeling free. I felt a lot better outdoors than indoors. I wish we could go once a week."

M. Write a tall tale using an insect, or mushroom, or fungus as a character.

N. Mimetics: Mimic an animal or object for others to guess.

(Sentences in quotations taken from papers of fifth graders.)

IV. Haiku Poetry - the poet feels a closeness to nature. A seasonal theme may be used. Most objects used in the Haiku form are organized in time and space and the relationship of the three elements together form an aesthetic experience.

The basic pattern is this:

Line I. 5 syllables (Where?)
Line II. 7 syllables (What?)
Line III. 5. syllables (When?)

Example: Where? on the gnarled limb
What? a crow above is cawing.
When? Autumn stillness now.

The above is taken from Poetry for Today's Child by Ruth Kearney Carlson and may be obtained from the
"Instructor Publications, Inc."
Dansville, N.Y., 14437

It is suggested that many Haiku poems be read before attempting to write.

V. Find tracks in the mud and take plaster of paris impressions of them.

VI. Make impressions of fossils in clay.

VII. Make simple maps of school grounds.

VIII. Keep a record of the effects of the seasons on an adapted tree or plot.

IX. Observe and record movements of an insect or animal.

X. Develop a list of vocabulary and their meanings.

XI. Write a description of a snow, rain, or wind storm.

XII. Collect items in a bag to be identified by the uses of senses excepting sight.

XIII. Draw a picture of outdoors and make up a story about it.

XIV. Write an experience chart about a nature hike. (Primary)

XV. Write a log or diary of a day's field trip.

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OUTDOOR EDUCATION WORKSHOP IN LANGUAGE ARTS

By: Paul L. Keener

Purpose:

The purpose is to stimulate children's **communicating** ideas found in the environment. It is realized that many activities can be done without using the natural environment, but it is known that the direct experiences out of doors give a concrete topic to work with and also helps children to become more aware of the natural environment and their relationship to it.

The activities centered around the development of the use of the five senses, which is important in all areas of the language arts.

General Objective:

To stimulate an interest and enrich the language arts and to develop the ability to communicate through the various means of expression using the out of doors.

Specific Objectives:

1. To teach children the importance of utilizing all of their senses when making observations.
2. To provide children opportunities to use imaginations through storytelling, writing and dramatics.
3. To realize that poetry is a means of communicating ideas.
4. To practice recording and writing about interesting events experienced in the out of doors.

Children, like many adults, need guidance in how to take advantage of nature's natural surroundings to bring aesthetic awareness, interest and understanding. The following ideas might prove valuable in guiding children's ability to gain a large body of information about any given subject. It is from this viewpoint and information that children form ideas, use their imaginations, broaden their viewpoint and ultimately are encouraged to use more daring and original ideas of communication.

The following activities can be used most successfully in the accomplishment of the foregoing objectives.

ACTIVITY I

Let the student stand or sit quietly in different places on the school grounds and record all of the sounds they hear. Then have them identify the sounds and classify them into natural or man made.

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Have the students stand, turn, walk and run. Ask them to describe how the rushing air feels when they are doing these different things.

Be creative, use your imagination and think of other ways to tune in to the environment.

ACTIVITY II

Guide for taking advantage of nature's natural surroundings.

Choose an object or part of an object to study. An example would be a knot in a tree, a weed standing in the snow, or an area of ground enclosed with a clothes hanger.

1. Help children search. Eliminate the vast surroundings and FOCUS upon ONE subject. Examine it from all viewpoints.
2. Help children to see the subject in different conditions. If possible, return to the subject in the moonlight, in the rain, at dawn, at sunset, in the sunlight, and on a cloudy day. Can the child imagine the subject under these conditions?
3. Discuss one's original impression of the subject. Is it strong, weak, graceful, twisting, moving, still, fresh, dried up, wounded or lonely?
4. Review the art elements and their part in emphasizing its character. What kind of lines, shapes, textures and colors are present?
5. Search in depth with all their senses. Use eyes to study, fingers to feel, nose to smell, and mouth to taste the subject. (Overstimulation is very important.)
6. Strengthen observation with knowledge. Read about the subject to broaden viewpoint. Learn the technical aspects.
7. Select the way to express one's reaction to the stimulation. It does not matter how this is done as long as it is done. If it is with art materials choose those which will emphasize the character to be expressed. If it is a poem or a paragraph give the child the time and the atmosphere to create this.

Use the collected data to accomplish classroom objectives in the language arts.

Linderman, Earl; Invitation to Vision; Dubuque, Iowa, William Brown, 1967.

Heberholz, Donald and Linderman, Earl; Developing Artistic And Perceptual Awareness; Dubuque, Iowa, William Brown, 1969.

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ACTIVITY III

Exploration Walk
(Individual, small group, large group)

OBSERVE DISCOVER LEARN AS YOU LIKE

1. Use 3 x 5 card to list things observed (senses)
2. Use bread wrappers to gather items (e.g. samples of leaves)
3. Do not pick wild flowers

SUGGESTED THINGS TO DISCOVER

1. DISCARDS -- leaves, cast-off skins, etc.
2. ACCIDENTS and CURIOSITIES, such as
    a. Uprooted trees
    b. Leaf eaten by insect
    c. Two trees joined or grown together
    d. Plant growing through dead leaf
    e. Others
3. ODORS - Leaf mold - etc.
4. FEELS - Damp, hot, sticky, soft
5. SOUNDS - Birds, Animals, Insects, Leaves, Wind in the Pines, Tree tops, Wood squaks (wind rubbing two limbs together)
6. LOCOMOTORS AND TRANSPORTERS - Wings of birds, scales of snakes
7. SQUATTERS - Moss, vines bugs, and insects on leaves
8. INCHERS - Anything less than one inch: snails, insects, moss, and flowers
9. CLIMBERS - Vines and squirrels
10. HITCHHIKERS - Ants, ticks, burrs, seeds, etc.
11. SHAPES - Designs, veins in leaves, rock forms
12. CYCLES - Tree bud, leaf flowers, frog eggs, pollywog, frog

Note: We will get together after the walk, compare notes and samples. We will write haiku poems and illustrate with the materials found.

ACTIVITY IV

Have the students describe in various ways, with as much detail as possible, the experiences they have had. Use variety and let students be creative.

Make use of art and classroom resources and supplies.

Don't forget drama, movements, children's literature, ________, ____________, ______________, ______________!

Credits to:

Dr. Ernest Coons, Outdoor Education Coordinator
Mr. Lendall Haskell, Art Education
Miss Sammie Ives, Education Division
FACULTY AT STATE UNIVERSITY COLLEGE, PLATTSBURGH, N.Y. 12901

MULTI-SENSORY LANGUAGE ARTS DEVELOPMENT

by Bertha Hartman

The emotionally handicapped youngster resembles the multi-sensory disabled child in demonstrating an inability to respond appropriately to sense stimuli. He is too disoriented to take the time to observe properly. His auditory response to noise is out of proportion to the actual sounds presented. He is generally uncomfortable and confused in unconfined areas. Similarly, his reaction to other sense stimuli is cluttered, inaccurate,or aggravated.

School for such a youngster is fraught with frustration and failure. His teachers must provide acceptable relevant motivational devices of pleasurable learning activities to interest him long enough for remediation and teaching to take place. The world beyond the classroom, when properly utilized, affords a veritable treasure chest of material to call upon. Starting with areas of the school yard with which they are comfortable,the emotionally handicapped youngsters can explore gradually increasing environs. The emphasis should be on extending the quality of observation, the increased development of appropriate sensory awareness through directed use of each of the five senses in isolation or combination.

The emotionally handicapped youngster can learn to be secure out of doors. Sights, sounds, and feelings from nature can help to extend and enrich his limited horizons. Within the classroom, a program in language arts-reading and writing and all their concomitant skills - will help the youngster integrate and communicate his developing awareness. Thus the environment beyond the classroom constitutes the laboratory for increasing sensory sensitivity, while the classroom remains, for the most part, the area for orientation, teaching, and evaluation to take place.

In the following I have listed some language arts activities to be conducted beyond and within classroom walls. The variety of such experiences is limitless, depending only on the ingenuity and resourcefulness of the teacher. As you will notice, activities overlap from one area to another:

I. Outside the Classroom

   A. Reading and Writing

      1. Follow a nature trail, reading the signs. (Make your own class trail, doing your own sign.)

      2. Visit an old cemetary. Read the epitaphs, names and dates.

      3. Have a treasure hunt. Give each group of 3 or 4 children printed directions from the school to their treasure. Have them take crayons, pencil and paper. One of the children will draw the treasure, one will label it, one will write and one will tell about it.

"Go out the cafeteria exit. Walk down the path to the little playground. Turn right and walk along the edge near the trees. Stop at the tallest tree and look around at the bottom. What do you find that does not belong there? (possibly a shell, piece of driftwood, starfish, etc., something not indigenous to the area.)

4. Have an outdoor poetry reading session.

5. Read and make maps or charts of walks and trips.

6. Gather nuts, seeds, twigs, moss, pine cones, acorns, seed pods and similar objects to develop the sense of touch and smell. List the objects and write a word or words to tell how they feel and/or smell (Follow up by make collage of objects.)

B. Listening, observing, perceiving

1. Stop and listen. Close your eyes, make a fist, and count the different sounds you hear by extending a finger for each.

2. During a class walk ask the children "to take a picture." Have them make a box with their fingers, or look through a cardboard tube, and find the scene they like. Let them focus on this small area to remember its arrangement. Have them sit down and sketch the picture or draw it from memory back in the classroom.

3. Take a tape recorder along on a trip. Sit very quietly for two minutes, then turn it on and record the sounds.

4. Children sit in a circle. One starts the game by saying, "From where I am I can see a gray birch." The next one says, "From where I stand I can see a gray birch and a black cherry." Each player repeats all the previous statements in exactly the same order and adds another true statement. He may be challenged and if unable to defend his statement, he drops out.

5. List the sounds you hear, or the smells around you. Distinguish between man-made and natural sounds and smells. Describe them.

C. Spelling, Phonics, Vocabulary Enrichment

1. Look around for all the things you can find beginning with "B" (or any other consonant). Make a chart for the room.

2. Riddles - "I am think of a tree (or bird) that begins with "M", etc.

3. Spelling Bee

   Divide children into teams. Use blowers, insects, or trees. Hold up a flower; the first in line names it and spells the name or give an interesting fact about it. If he fails he drops out. The team with the most children left,wins.

4. Nature Alphabet

   Played with teams. The leader selects a letter of the alphabet. Each player names a bird, flower, or tree which begins with that letter. (Decide on a time limit.) No one may name an object already designated. The team having the greatest number of players left at the end of the game is the winner, or the last group to name an object commencing with the letter wins one point for his team.

5. Sound Location

   A youngster is chosen to be "it" - a good woodsman. The other students stand behind his back, no closer than 10 feet. A leader points to someone who then whistles, "it" must name the whistler, who then becomes "it" in turn. Out of doors the sound may also be the rustling of leaves, jumping in sand,snapping a twig, dropping a stone, etc.

II. Within the Classroom: Written and Oral Expression

A. Written Expression

1. Walk to a quiet spot, a few minutes observation and meditation, can provide the inspiration for creative writing.

   a. Haiku - 3 line, unrhymed composition 5-7-5 syllables.

      Line I 5 syllables - where?
      Line II 7 syllables - what?
      Line III 5 syllables - when?

   On a gnarled limb
   A crow above is cawing
   Autumn stillness now

In the evening sky
The clouds seem so very gay
When kites are flying

Crow, with shiny clothes
As black as a moonless night
I am of your race

The street is empty
The children have gone in doors
A storm is coming

Creative - and great practice in syllabication.

b. Cinquain -

5 lines, unrhymed

Line I - 1 word - name it - noun
Line II - 2 describing words - adjectives
Line III - 3 action words - verbs
Line IV - 4 words telling what it means - sentence or phrasing to your synonym
Line V - 1 word - rename it

Flower
White, free
Blooms floats, attracts
A beauty to see
Lily

Amphibian
Green, smooth
Sets, squats, crows
A creature for laughter
Frog.

Deer
Sleek, graceful
Running, leaping, fleeing
Happy to be free
Buck

2. Write an experience chart about a nature hike, or a log of a day's field trip.

3. Make a list of adjectives, e.g., rough, smooth, sharp. Find or name objects and categorize them appropriately.

4. Write a description of a snow, rain, or wind storm.

5. Scramble names and facts using material from nature.

6. Make up crossword puzzles from vocabulary learned out of doors.

B. Oral

1. Give directions for a nature hike or field trip.

2. Collect interesting objects. Each child tells about the object-reasons for his choice or facts he has researched.

3. Prepare and participate in an original out of doors drama.

4. Pretend you are an alien space creature landing on our planet. Describe what you see, using a new vocabulary. (You can't use the name of the object.)

5. Give directions for a game out of doors and lead the game.

6. Using "personification" - the granting of human characteristics to a non-human object--have the plant or animal tell a story about itself.

> "I'm tired of four walls and a ceiling,
> I have need of the grass."
> Richard Harvey

UTILIZING YOUR SENSES TO ENRICH YOUR LANGUAGE ARTS PROGRAM

by Justina Ortlieb

Helping the child become more sensitive to his surroundings is a very important function of the teacher.

If we can help the child to experience the "doing" in the out-of-doors this then leads very naturally into motivating and exciting academic experiences in the classroom. Children go out and walk in, feel, and discuss a newly-fallen snow. They spend ten minutes outside using all their senses (how does it feel?--how does it smell?--would you like to taste it?--can you hear it falling?--what does it look like to you?)

Are they then better able to come in to the classroom and write a cinquain? Do they know now what a "descriptive" word is?

A sample of a cinquain written by one of my ten-year olds follows:

Snow
Wet, white
Floating, falling, sticking
Makes me feel happy
Slush

Remember in your teaching, the lettered phrase you saw when you registered today:

> "I hear, and I forget.
> I see, and I remember.
> I *do*, and I *understand*."

If we apply this thought in our everyday teaching, our children will profit.

Today, we *did* go outside. We listened for five minutes, and recorded what we heard on a note pad. We "turned off" our other senses to a degree, and concentrated only on what we could hear. When returning to the classroom, we shared verbally what we heard with others in our group, and I listed them under the headings "man-made" and "natural." With your children, you may want to leave the list on the board, and the next day, ask them to write a paragraph about what they heard in the out of doors. They might use the list on the blackboard to help them remember. All the sounds heard by the group would be listed together, however, so each child would be reading the whole list and copying just his own sounds (now properly spelled) in his story.

We next composed a cinquain using our list of sounds as a guide. Remember the plan?

Line 1 - name the subject
Line 2 - two descriptive words
Line 3 - three action words (ing endings)
Line 4 - four words expressing a feeling
Line 5 - rename subject (synonym)

We also made up sentences asking: "Who's your who?," and "What did your who do?" (why, how, when, where, etc.)

Some children might like to use a tape recorder and dictate their story. It's a challenge for some of them to play it back in short phrases and see if they're able to get the words down in writing as they listen to their own voice, stop, write, and listen again. This activity helps with auditory memory and auditory sequencing problems.

Another profitable outdoor experience is to "get to know a tree," as described by Marion Carpenter. Your children each choose a tree for "their own," and study it. Bark rubbings might be made, a sketch of needles or leaves, observe characteristics, such as alternate branches and buds, rough or smooth bark, estimated height, general shape, etc. Identify the tree using clue charts, and such guide as "Tree Finder" and "Master Tree Finder" by May Theilgaard Watts published by Nature Study Guild, Box 972, Berkley, California, 94701. Back in the classroom,use Palmer's "Fieldbook of Natural History" with the child, and help him find the tree name in the index. Help him read about it, and make out a 3 x 5 card using the common name, latin name, list important characteristics and other interesting information. Perhaps the child would like to make a scetch of the fruit, leaf, etc., and start a class file about "trees we know."

The out of doors and the "doing" are take-off points for many language arts activities. I am sure you'll come up with many that I haven't thought of -- Good luck - and have fun!

MULTISENSORY LANGUAGE ARTS DEVELOPMENT AND REINFORCEMENT

by Barbara Westphal

INTRODUCTION

It is my thought, in writing this, that one can turn to it at some future date, when this workshop has long since concluded, and glean from it some ideas, methodology, or philosophy with which to guy one's spirit for continued effort aimed toward outdoor experiences and learning for children, as well as indoor reinforcement of same.

Do not misconstrue these ideas to mean that you must put them all into one year's teaching-- or indeed that would be feasible. You must gauge your group, its capabilities, interests, and ability to function as a group, as well as the school routines that must be worked around in order not to conflict with other essentials such as language and speech activities on a one-to-one basis with a special teacher. It is advisable to pick a time for your walks when these children will not miss out on such essential items of their program. It will not improve their attitudes toward these one-to-one experiences if they are missing out on the nature walks; as it will not improve their language and speech if you arbitrarily take them away from these opportunities as a regular habit. One must temper enthusiasm with wisdom--forego the lesser immediate goal for the greater remote goal, as in many things.

Within these confines, it is still emimently possible to have a great many outdoor experiences, three or four times a week if possible. They need not be long. They need not be formal. There should be trips to places such as Lakeside Nature Center included to get them away from their home grounds for "special" enjoyable activities toward which they can plan occasionally.

Therefore, know that these are activities that I have provided over a period of years, in a variety of school situations, with varied handicapped groups, in different school systems where the rules and regulations have varied greatly-- from 18 feet of natural-science tables under our windows (just great), to schools where no live pets were allowed at all. Vary, innovate, modify, even go a little bit underground if you must: But keep going.

As friends of mine dubbed their sailing scow:

PRESS ON REGARDLESS
!!!

This is a "fun" workshop. We are supposed to "turn people on" to the out-of-doors. The people who are not already "turned on" have found other things to do this morning, which they feel are more pressing, I'm sure. The "turned on" people have already sprung for the $2.50 admission fee: We'll accept that, and take from there.

What most of us are really here for is to expand and enrich our ideas, experiences and "know-how", so we can BETTER do that which we are already doing (and probably quite successfully) in the first place.

First, without meaning to insult your intelligence, we'll cover a few basics. It's necessary, to make my points, and to bring home more forcefully, philosophies and ideas already known to you.

My topic was supposed to read, "Multisensory Language Arts Development AND REINFORCEMENT". The reinforcement may be even more important than the original exposure, since the child is by then feeling more knowledgeable and secure; and it is, in effect, a way of taking him outdoors all over again, reliving the first experience, and bringing his memory-bank into play. He will have very definite ideas about what pleased or excited him most this is the time to reinforce concept development, write words of their choice--get in some more formalized teaching that will be vital to them. We all know you can't make a child talk--you can only expose him, guide his experiences, reinforce his attempts to verbalize, and lend support and approval--in meaningful ways--when he does break forth into speech. MOTIVATE, ENCOURAGE, CREATE SECURE OPPORTUNITIES TO TRY AND KEEP ON TRYING.

Concept development must be very strong, in the first place, for a child to verbalize, even more so to learn to read. Too much criticism or structure may turn him off completely, with feelings of insecurity and failure. ENTHUSIASM should greet his every attempt. The group should be involved in sharing it, as often as possible. It might disrupt another routine, but if a child suddenly makes a great spurt forward, go ahead and disrupt routine. It's a big day when a child says something he has never attempted or been able to say before. Treat it as such. Learning does not happen in time-slots, in spite of the most helpful lesson-plan outlines. A boy once dragged me by the hand over to our fish-tank of guppies, pointed by hand at the tank and said, "Fish---- Yock! Fish go Bafroom!" One of the greatest, most enlightening events in my early teaching career.

I soon discovered the more pets I brought in, the more involved and verbal my pupils became. It also rid them of a lot of fear. We fear the unknown. What's scarey about a turtle when you have them "living in" in your classroom? Or snakes? Or frogs? Or mice?

And the more pupils learned about pets, the more they wanted to know. The more pets they had, and books they looked at about them, the more they hunted information about other pets to learn about. I grew with them, as my pocketbook and my ability to keep the pets happy progressed. One little boy, allowed no pets, asked if he could take home our May Beetle. His "Beetle In A Bottle" lived over a month, and gave him great joy. He was still talking about it two years later. When it finally died, he solemnly brought it back in for our collection. I might add that his parents were disgusted with the whole idea, start to finish, even tried to bring it back to me open-house night just to get it out of the house when he was not looking. They went along when I insisted that it had great meaning for him (especially when he had been trying to do away with all our pets the year previously--squashed crickets, tried to do in a pet turtle, and smashed two fish-tanks--just to give you a thumb nail sketch).

There are certain basics one must consider before waltzing into the environment with children, especially these children.

1. Discipline of the walk, hike, or bus-ride

2. Response to teacher's directions in all things--it must be *immediate*, "Don't swat at that bee."
   "Back up, swampy."
   "Don't touch, poison ivy."
   etc.

3. Proper shoes--gripper soles
   Warm clothing but light and sheddable
   Hats, gloves and boots, in season

4. Large, sturdy bags with handles for carrying, who-knows-what, back

5. Names, school and phone number on bags, along with teacher's name

6. First aid kit, soap and two or three damp, clean washcloths or paper towels, each in a plastic bag of its own. Tie-Tapes open fastest.

7. Full list of names, addresses and phone numbers, list of allergy or seizure of group in teacher's possession at all times, along with names of persons to notify at school if problem arises to warrant same.

   Also, helpful suggestions regarding allergies or seizures, if any are pertinent.

8. Plenty of plastic baggies and tie-tapes for "specimens" and for picking up and storing doubtful objects, to be later identified (hopefully) back at school. This is very important. Children will want to bring home some unusual things (from your point of view, maybe--but to them, very interesting and meaningful). Let them, if possible and practical.

9. Paper towels--a dozen or so. For hands, for wrapping delicate objects--whatever.

10. Kleenex--obviously, but so easy to forget!

11. Supply each child with a plastic bottle or two, with lids (holes in some, or teacher can carry something with which to punch holes if needed--jars I suggest an all purpose scout knife) for possible "pet" houses for transportation back to school.

    Plastic peanut butter jars are good.
    Plastic mayonnaise jars--also come in gallons.
    (check a local diner)

And for the classroom, let's not forget those gallon GLASS jars, often available at diners, which can be used for pet homes (beetles, moths, butterflies, caterpillars, praying mantis, terraria, etc.) with ring of water around edge for drinking without drowning, and sturdy branch with leaves for climbing and food. Renew branches as they wilt. Good opportunity to reinforce what constitutes a living plant, what makes a whole plant, why they die, what they need for continued life. (A bottle cutter could turn these into more attractive containers if successfully done.)

BE SURE TO ESTABLISH WITH CHILD WHO CATCHES OR BRINGS IN A LIVING CREATURE WHETHER OR NOT THAT CREATURE IS FOOD FOR ANOTHER PET, OR WHETHER HE WANTS TO KEEP IT FOR A PET HIMSELF. IT MATTERS VERY MUCH TO HIM.

> If his pet caterpillar is eaten by the praying mantis, you've got a broken-hearted child--rightfully so. You may not get much verbalization, but you will get plenty of static from the younger level, and it may set your relationship back a hundred years or so, because you can't be trusted!

TELL YOUR CHILDREN YOU WANT TO TAKE THEM PLACES: AND WHAT YOU EXPECT OF THEM BEFORE THEY ARE READY TO TRAVEL. Practice with them, doing just what you say in split seconds. Run, walk, stop, start, follow the leader. Teach them to be quiet and listen. Teach them to walk everywhere they go, three feet between them and those in front of them--so a sudden stop is possible without hurting anyone.

Preferably, teach them to walk in pairs, or with "partners". There is great security in having another hand to hold in an emergency. I use fire drills for this type of preparation. Work on "right, left, in front of, in back of, over, under" WHILE YOU ARE ON THE MOVE WITH THEM. In 3-D it has much more meaning.

Choose trips, or walks, or places to go that you will enjoy and feel comfortable about. If you are secure, they will be. You'll find yourself growing and branching out with each successful experience. You'll discover they are better behaved than in the school routines, usually, for this is special, just for THEM, and they KNOW it.

Talk about everything you see. Do it informally.

LISTEN TO THEM!!! Especially on busses--you'll discover all kinds of concepts that need reinforcement later, custom tailored to each child. You can correct some misconcepts immediately. YOU WILL GET TO KNOW YOUR CHILDREN ON THESE TRIPS--WHAT TURNS THEM ON. And what turns them on is the achilles heel to teaching them. Build on their strengths and latent interests and abilities.

TAKE SLIDES--about half the price of colored prints--pupils can see themselves later, in 3-D color, doing what they did and reliving it. Then pick a few meaningful slides and have them printed. Still no more than prints would have cost originally. Child suddenly gains perspective, from 3-D to flat. You'll find him bringing you pictures of things you saw together that previously had little meaning for him. How on earth is a child to know how big an elephant really is, unless he sees one, in relation to the size of some familiar object, preferably himself, (in 3-D or print)? That 2" X 3" picture in a book suddenly has meaning for him.

You can't MAKE a child talk, but---

1. You can expose him to concepts.
2. You can make him want to talk.
3. You can listen when he does.
4. You can value it and share it with classmates, however imperfectly expressed.
5. You can keep on emphasizing that we each go at our own speed.
6. Emphasize that we are each better at some things than at others, some run better, build blocks better, play ball better, are better at numbers, etc.
7. You can ever-so-carefully guide the speech as it progresses in a positive manner--i.e. "Good! You might want to try a more grown-up way to say that too."

    "Try "don't have" for "ain't got'." or,

    "You learned to talk when you were very small, and said big words before you were really ready for them. Now, they are habits. Now that you are growing bigger, you should try harder to say it the grown-up way. Let's sound it out." (lll-ook for 'yook', sss-kool for 'sool' or 'kool', dess-k for 'dex', etc.)

    I have found this approach to be very successful.

Verbalize that it takes a very long time to change a habit, so it won't be easy. But we can if we keep trying and trying and never quit trying. Reward every effort and achievement. Find a friend a child can repeat a word to, when he finally says it successfully. Celebrate. Call in the speech teacher to hear it. Red-letter day. Write it on the blackboard, or on a chart. "Today Tommy said desk the grown-up way', etc..

Here follows some out-of-the-seat and into-the-out-of-doors (and 3-D environment ideas for building language-development through concept-establishment, and motivation. It is done through pure wonder, excitement, joy, and some trepidation and suspense. To quote Dr. Margaret Meade, "Rattle the ratcage". To quote me, "If you don't turn 'em on, how are you going to tell how much current is flowing through the wires, and add more circuits?"

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And if you haven't seen it, touched it, smelled it, and as often as possible tasted it, what have your really learned. You are abstracting learning. Dr. Leland Jacobs of Columbia once stated in a reading course I took, "If you are just teaching work-books, and helping pupils push pencils on papers, you aren't earning your paychecks, my friends."

You must first learn it before you can abstract it. The paper routines should FOLLOW and reinforce the 3-D routines. They are the result of real learning experiences--the short hand techniques, if you will, (which very bright children can be exposed to relatively, but, still, at what cost?).

IN SHORT (and this hasn't been--but it's the result of a great many years of teaching experiences): GIVE THEM JOY, REAL LEARNING. MAKE SCHOOL THEIR PLACE. MAKE IT FUN. THEN, if you knock yourself out, and have enough reference books and stamina, you might just half manage to keep up with them, after you have unleashed their latent talents and interests. You will have the opportunity to know and to teach the whole child. Isn't that why you are teaching?

AND YOU KNOW WHAT? IT'LL TURN YOU ON TOO. TIME IS LIFE (someone said it). DON'T WASTE A MINUTE OF IT--YOURS OR YOUR PUPILS!!!

IDEAS TO TRY OUT-OF-DOORS, WITH FOLLOW UP IN-DOORS

It goes without saying that this list, though extensive, does not go into questions you should ask your pupils, discussions you should trigger, creative thought processes through which you should lead your pupils, very slowly step-by-step, by inductive or deductive reasoning, if need be.

I leave that to you, the competent teacher. This is not kindergarten lessons on how to teach--merely ideas to motivate you, should you be casting about for something new to try. But I must stress that you are obligated to give all your pupils, disturbed or otherwise,choices, choices, CHOICES! They must be made to think creatively, even if it is only a choice between a peanut and a marshmellow. Once the synapses in the brain are functioning at their optimum, reason and memory will be found to have developed fantastically. Academecia will hop the same gaps in the brain that have been used for memorising fun things that the pupils have done. Recall anything, and memory patterns are being set up. Choices in anything will start good habits of independent thinking. These will come to bear in all other areas, as they are improved and developed.

> I TAUGHT ONE LITTLE BOY WHO HAD VIRTUALLY NO MEMORY, SAVE HIS PARENTS, BROTHERS AND SISTERS NAMES. THROUGH HIS GREAT LOVE OF ANIMALS, HE KEPT ASKING THE SAME QUESTIONS REPEATEDLY FOR MONTHS. SUDDENLY THERE WAS FEED-BACK. HE STARTED TELLING ME THE ANSWERS TO HIS SAME QUESTIONS. AS MEMORY DEVELOPED SO DID READING, WRITING, MATH AND SPELLING SKILLS, AS DID HIS BEHAVIOR, MUCH TO MY JOY. THIS BOY COULD REASON RATHER WELL, I MIGHT ADD--JUST COULDN'T REMEMBER (EVEN WHAT HE HAD FOR LUNCH).

Perhaps those of you who can find the time to compile a list of your own creative endeavors (pertinent to this area or otherwise), would care to send me a copy, care of Ed Bieber, here at Lakeside Nature Center, Spring Valley, or to me at Box 55, Nanuet, New York 10954. I would be much interested in your comments and your ideas.

IDEAS TO TRY OUT-OF-DOORS, WITH FOLLOW UP IN-DOORS

1. What are the animals doing during differnt seasons of the year? (Birds, squirrels, deer, mice, rabbits, dogs cats, people).

2. What about fish, turtles, insects (bees, butterflies, moths etc)?

3. What can the animals find to eat? (berries, old apples, seeds, bushes, tree twigs, bark, stored nuts and seeds for the winter).

4. Collect leaves.
   Make leaf prints, and/or seed prints in different seasons.
   Single color crayon, multi-color crayon, superimposed colors.
   Try some wax resist on a few of them (wash them with a very pale very diluted water-color solution). It gives a completeness to the picture that is pleasing.

   Frame some with larger colored paper.

5. Make some block prints (try styrofoam for this, and a pencil or ball point pen). Cheap, easily made, easily tossed away. Only cost is ink and roller.
   Glue styrofoam meat trays to cardboard & cut to smaller sizes desired to print. Draw your picture. Ink. Use the heel of your hand to print. (A la Dr. Chandler Montgomery of NYU.)

6. Go fishing. If fish are not biting, hunt weathered twigs and branches for crafts.

7. If someone goes away, ask for things (shells, rocks, interesting things they might see, that cost nothing but a little time).

8. Make collections in your room and/or for pupils to take home. Label everything.

9. Make a feather collection: magnify one if possible, read about birds to class. Discover what keeps them aloft--how they are built differently from other animals.

10. Walk in snowflakes: notice difference--grainy, large, wet, powdery.

11. Tap a maple tree in spring, when you have night freezes and daily thaws. ANY maple tree will give sap. Sugar maples give most concentrated, by far, but don't let that deter you.

IDEAS TO TRY OUT-OF-DOORS, WITH FOLLOW UP IN-DOORS

12. Collect seeds (including acorns and nuts), pumpkin, squash, orange, etc. Grow some. Feed some to birds and animals in winter. Dye and string some. make seed pictures.

13. "Bring IT in" (IT could be anything)--for a visit--for and hour--for a day. Invite people with hobbies.

    LET PETS LIVE-IN, in the room. If possible, when you yourself get a pet for school, say nothing to the children: keep it home at least 2 weeks. you will become familiar with its care, its habits, its loveable characteristics; and you will by then know, probably, if it is healthy. Then take it in as a surprise. Take movies of the unveiling. It will be worth it!

14. Directionality--use it on walks--in 3-D it has meaning "We will go up that hill in front of us, and go left. (Behind us is the school). Tell me, when we get there, what we are going to do. See if you can remember, etc". Draw a map as you walk, or, "Look at the plane over our heads. It's flying south. I wonder where it is going. Has anyone here ever been in a plane? Where did you go?" etc,.

15. Poetry---try some, or at least some rhymes. You start. Let it grow.

16. Music. Make up silly songs at first---children are less embarrassed to participate, because less is expected of them. Listen for music all around you.

17. Pick fruit branches and put them in water. January, try wild cherry and apple. Later dogwood. In Spring, Forsythia, pussywillow.

18. Make a bird feeder.

19. Hang it, fill it daily. Don't hang it if you don't intend to be regular--the birds will get to count on it, and may starve.

20. Cook some suet see-cups and hang them. Replace as used. (Ground suet and bird seed mixed).

21. Feed a worm, beetle, caterpillar, etc. (along with usual live-in pets).

22. Find a caterpillar cocoon, or praying mantis crysalis. Cover carefully with VERY fine wire mesh and let hatch.

23. Find insect homes in winter, in tree trunks,twigs, on branches, old leaves, etc..

24. Take a space-walk (again Dr. Chandler Montgomery, NYU)--over, under, through things, around, crawl through some some small tunnels, light and dark areas, winding areas. etc..

25. Figure out which way the wind is blowing. Go fly a kite. Buy some. Make some.

26. Make pin-wheels. Fly them. What makes them work?

27. Climb a big rock. Play, I am King of the Mountain, I am Queen of the May (for younger groups). Sing a marching song to older ones. Or just follow the leader.

28. Kick leaves.

29. Blow seeds (including milk weed pods). Shake seeds over white paper later.

30. Cut a whistle or flute if you can find out how. Make dry seed instruments--throw some into old plastic toothbrush holders, for instance, and shake.

31. Roll down-hill; run up-hill, run down-hill. Roll a ball down-hill. Try to roll it uphill.

32. What sounds can you hear? Is there music of a kind? (horns, whistles, buses, car tires on wet or dry streets birds, wind, tree leaves 'talking', insects, bees, ducks, geese---anything).

33. Find things that fly, that crawl, that walk, that hop. Make a list. Draw or cut pictures to go with them.

34. Slide on ice, on wet leaves, on snow, wet grass.

35. Hunt four leaf clovers. Notice white, pink, purple brown clover blossoms, small moths and insects in the grass, unopened clover.

36. Watch a bee--his feet--his "mouth." Talk about nectar and pollen.

37. Feel the bark on different trees--different sizes of the same kind; different kinds. Describe them.

38. How many things can you find that are (yellow, red, blue, rough, smooth, hard, soft, same, different).

39. Look at roots. All kinds of roots. Bring in some potatoes, carrots, beets, etc. (later). Grow a sweet potato vine.

40. Feel grass, moss, hay, nut shells, bricks, sidewalk, slate car bumper, coats, mittens, shoes, boots-------etc.

41. Look into a puddle. Poke something at the bottom with a stick.

42. Hold a stick in the water. Look for 'band' in stick. Look for shine on top of water (reflection) or dust, or oil, or rainbow effect of gasoline.

43. Find your shadow--at different times of day and year.

44. Figure out the time of day by the sun, Guess.

45. Go skating (ice or roller) if at all possible. Make it a"club".

46. Write a story about something you saw for children to read, then have them write on (you be secretary, if need be, and record what they dictate. VERBATIM. Don't fix it up. It is theirs. Let them sign their names to it.

47. "What did you like most about your trip? What frightened you, excited you, made you sad? Draw pictures of your trip. Tell me what you want me to write about your pictures". ("Tell me about it" is a good way to get what you are after without giving the child a mind-set or having to guess what he or she drew).

48. Make a class picture-book of trips.

49. Let the pupils make their own picture books of trips. (12 x 18 folded paper, several sheets, punched and a string put through fold to hold together is a simple start).

50. Where would you like to go: what would you like to do, another time?

51. Make a boomerang of your own out of cardboard. Change the sizes and see if they fly.

52. Get a fish-tank and some un-iodized salt (just a tiny pinch to a tankful--natural pond water is one-tenth of one percent saline). Announce your purchase everywhere. Wait and hope. Maybe you will acquire an inhabitant. (Add a few rocks from a near-by pond).

Get some killifish, all else failing, or some guppies. Killifish need little aeration, and can usually be found in near-by brooks as minnows. (They make good water-turtle food, also).

53. Get some salamanders and a booklet from the pet shop on how to care for them.

54. Get some newts from a pet shop (in winter) or a brook (in spring). Be prepared to keep a bucket of dirt (plastic bucket), a clump of grass on top, and a large bunch of worms on hand. Moisten occasionally, so dirt does not get too dry. Worms will multiply. Care-same booklet as in 53.

55. Get some chamelions. Care-same booklet as in 53.

ASIDE - WATCH!!! CHECK WITH CUSTODIAN TO SEE WHEN THEY SPRAY FOR ANTS, ETC.. TRY TO BE THERE SO YOUR PETS ARE COVERED

UNTIL SPRAY HAS A GOOD CHANCE TO SETTLE--HALF HOUR SO.

56. Get mealworms (for chamelions) & learn how to raise them. (In dry oatmeal, in large screen-covered jar is good).

57. Draw your pets to inspire speech improvement. (Use the tough-to-sound combinations: sc, sn, sp, ch-- whatever your particular pupils are having the most trouble sounding--those should be the sounds you include in the names of your pets. They will try much harder to say them.

58. Draw pictures from real life--out on the sidewalk, looking out the window, sitting on the playground during adequate time.

59. Take your library books out-of-doors on a pleasant day, and find a pleasant place to read. Take many extras.

60. Saw peach pits to make basket type ear rings (or rings) to show the seed inside the protective shell.

61. Collect acorn tops, glue in Indian Beads and make jewelry, or, drill and string acorns and tops for necklace. (Reverse direction on tops).

62. Tumble rocks (beach pebbles are great for first load).
    Make jewelry.
    Make something for parents for every holiday, if possible:
        Cranberry relish for Thanksgiving.
        Sand-casted candles for Christmas.
        Tumble pendent for Mother's day.
        Tumble tie-back for father on Father's day.
        Real-life drawing or leaf-print for Valentine's day, or Grow something.

63. Make a suggestion game after trips. "I'm thinking of something"--- Describe something you saw, for instance, and ask pupils if they can name it.

64. Carve apple-faces and dry them on points of old pencils. The funnier the better. (Concept of eye, ear, nose, mouth location).

65. Catch bugs--in grass, under rocks, anywhere. Try to look up what you found.

66. Look to see what grows up between cracks in the sidewalk, or broken-up driveway.

67. Draw clouds or what they remind you of.

68. Hunt for big things, little things, or animal, vegetable, mineral.

69. Make goofies--from rocks, twigs, shells, seeds, pine cones, or any combination of same. These should be things that the group has collected, in so far as possible.

70. Take a magnet outdoors (also use indoors). Find iron--in rocks, metal--anywhere. Make a list of what contains iron; what does not.

71. If you can, get some beach sand; color it and make sand paintings.

72. What is the smallest thing you can find on a walk? The biggest? Take a magnifying glass for fun.

73. Look at everyone's footsteps in the snow. Compare. How big is a 'foot'? Make hand prints. Draw pictures in the snow.

74. Go on a walk to discover how many things you can smell. (Especially interesting on a trip to town). Smell the lawn after the grass is cut. After a rain. After it is fertilized. (Watch what happens after grass is limed). Smell leaves burning.

75. Go for a walk and see if you can find where different living things have their homes (rabbits, squirrels, birds, mice, etc.).

76. Grow something for your school, either in pots or in the ground. Check with your supervisor or principal first.

77. Guess who walked here? (Tracks in snow or mud).

78. Make shell or midget-pine-cone place cards for a party.

79. Draw those styrofoam block-prints of your trip and use them for a sick friend in class, or teacher; or make note-paper for Valentine's day presents. See if someone can't provide freebie envelopes. Cut your styrofoam blocks accordingly (or fold your note-paper to fit within them, if print is small).

80. Make spatter-prints over leaves, or pine needles, etc.

81. Make sponge-prints--cut sponges to shapes of objects seen on trips.

82. When you make your sand-candles, use something you collected, or were given as a mold--large conch shell, interesting rock, etc...

Use your weathered twigs and branches and make pool-effects in sand. "Float" branch or twig like driftwood in wax.

83. Have a litter and glass clean-up day, all pupils wearing sturdy gloves with plastic baggies over them, secure loosely about wrist, to prevent cuts. (Rubber band is good if large enough).

84. Try enameling, using some of the collected broken glass; or make terra-cotta glass collages.

85. Make pop-top jewelry.

86. Make felt-cuts of things you saw out-of-doors, for picture to frame (turtle, leaves, frogs, moths, butterfly, rock and trees, etc.).

87. Make up some clay-dough and try to make something you saw and liked on your trip.

88. Make mobiles with some of the objects you have collected. (Avoid anything that would hurt if it fell on someone's head).

89. Enter contests, as advertised in various educational magazines. Use nature as your theme if possible.

90. Collect: boiled water, faucet water, snow, ice, puddle water, pond water, brook and lake water, anything you can get. Compare in well-slides (under cover-slips) under microscope.

91. Leave a bucket of water (not full) outside to freeze. What happened to the water? Be sure bucket does not split; use metal.

92. Build paper airplanes and fly them--styrofoam planes.

93. Sail a leaf in a puddle or down a brook.

94. Go on a scavenger hunt out-of-doors, (Maybe you would like to hide clues in advance). Restrict area of hunt.

95. Cover or paint rocks for paper weights. (Funny faces, or turtles, etc.).

96. Learn with your children. Get cheap books and leave them around, so you can all find out.

97. LOOK FOR SOMETHING SQUARE IN NATURE. Take a pad along--copy designs in nature (leaf, butterfly-wing, moth, bee, tree trunk markings, birds, etc.).

98. Go to a greenhouse, farm, tree nursery, dairy, florist, rock-shop, mineral show, craft exhibit, state park, Lakeside Nature Center, etc.

99. Go to a garbage dump, sewage disposal plant, water co., resevoir, and electric company, telephone co., post office.

100. Go to a paint store. Learn about poison sprays, toxic and non-toxic paints. Read the different cautions on different cans and sprays.

101. Go on a picnic, or out to lunch.

102. Go to a grocery store. Comparison shop, or buy for a party, or buy to make something: cranberry relish, cookies, candy, salad, etc. Comparison shop--weight and price and looks.

103. Go to a bazaar--go to a bank for change before you go. Have a bazaar in your own school. Run it. Have the children label and price. You help. (Man, you knock yourself dead)!

104. walk in a fog, a snow flurry, a gentle rain, a hail-storm, Feel it on your face.

105. Watch your breath on a cold day. Breath through your mouth on a cold day, fast.

106. Contact Mr Beiber, your local pet shop, any good reference books--(even me if I can help, but they all have had more experience), on how to raise pets: keep some in your classroom all year, Have living plants around too, if possible, Make it a joyous, exciting place for children to come to. They will learn to love school--they will LEARN!!!

This is your own taking off point.

You will discover that ideas will come naturally.

This is so much fun, it's habit forming.

DEVELOPING PHONETICS AND ORAL WRITTEN EXPRESSIONS, THROUGH THE USE OF OUTDOOR EDUCATION

by Richard A. Marrazzo

This presentation is aimed at the use of Outdoor Education in the instruction of handicapped children of adolescent age, but by no means should it be seen as being limited to that group alone.

Those of us who teach handicapped children never cease to be amazed as to just how limited in knowledge and skills they really are. Also, teachers of so called "normal" children find they too are lacking in much knowledge and skill, which may have previously been taken for granted. All of these could benefit from this workshop.

Attempts here today have been and will be made to make us aware of the potentials that lie all around us, but outside the four walls of the classroom. This is not to be seen as a time killing "break" for the teacher, but as a bonafide tool of the teacher, and an enjoyable, worthwhile experience for the pupil.

We as educators have learned through experience the importance of natural situations in teaching. Children seem to learn more, faster from those things they study by touching and handling. The best way to learn is through direct contact.

In the past, this contact has been done by bringing objects of interest into the school. This method though, has it obvious draw backs and thus was limited in its use. Outdoor Education gives us the option to go outside the classroom school and expand our teaching-learning potential to infinity. Its only limitations are those of your imagination.

The disciplines which in the past utilized the touch-handle techniques were the sciences, but today we hope you see that all disciplines are capable of using and benefiting from these techniques.

Outdoor education lends itself to yet another growing "new" idea in teaching, that of the team approach (team teaching). Each discipline can aid and benefit the other. Over-lapping of areas occurs and is welcomed. This will, I hope, become apparent in this particular session. The title is Developing Phonetics and Oral-Written Expression Through the Use of Outdoor Education, but I hope to exemplify this to some degree, by seemingly straying into other disciplines.

Let us now seem to "stray" first into the field of reading. In the teaching of phonetics and oral-written expression, we must not, nor in fact can we, over look the value of reading. Let us now look at:

Curriculum Enrichment In Reading Through the Outdoor Approach

The purpose of reading is always to comprehend written language. Reading is not inclusive of itself. It encompasses being able to express oneself effectively either orally or in written form and creatively. Reading thus forms the backbone of language arts. It is man's basic means of communicating and learning. As a result reading opens up many avenues for the child to explore.

Curriculum enrichment in reading through the outdoor approach may be the answer to gaining the interest of the student. They will learn without the drill workbooks and learn from something that is part of their world. It is easier to relate first hand experience than irrelevant textbook topics.

The environment provides a vast resource for reading activities and an inspiration. An awareness will develop and also an appreciation for the outdoors and may lead to conservation and other fields.

Activities taken outside the confining classroom walls are of more value as a learning experience because the student will be exposed to many other subjects besides reading. Such activities as describing a cloud formation in one sentence, the feel of tree bark, the sound of a brook or the song of a bird.

Once outside the classroom, learning takes on an exciting perspective. The experience of the outdoors will serve well to enhance a child's creativity. His senses are awakened to the environment as an endless resource of stimulation.

-Haiku - Japanese poetry about nature usually 17 sylables, 3 lines that convey a feeling.
-Cinquain - 5 line poetry.

frog	Lime 1 - one word title or subject
green, slippery	2 - two words, objective
leaping, flying, landing	3 - three words, participles
glides gracefully upon water	4 - four words, expresses a feeling
enthusiast	5 - one word, renames object

--Scavenger hunt
--Planning a field trip
--Write the history of a tree, age, type, if animals live there
--Nature Alphabet - 2 teams, name a bird, plant or animal that begins with letter called. Decide on category before letter is called if wrong out of game, no duplicates
--Visit a gravesite
--Draw a picture of outdoors and then make up a story about it.
--Read 1/2 a story and have child finish the other half.
--Visit the local courthouse and read old wills and title deeds.
--Dramatizations
--Find out local history after getting acquainted with persons, places of interest.
--Write a letter to Conservation Department about poor conservation practices in the area
--Follow a trail by clues
--Anograms of animals, birds, plants

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- --Weather station log with a column for the weather saying, i.e., red sky at morning, sailor's warning, etc.
- --A what is it? riddle board
- --Displays or posters on conservation,ecology, etc.
- --Labeling nature trails

With reading, a definite foundation block to any type of oral or written expression, having been touched upon, we can now move on to the more widely known areas of Language Arts, and how the out-of-doors can help in their teaching

Curriculum Enrichment in Language Arts Through the Outdoor Approach

One of the concepts of teaching language arts in the out of doors involves developing a sensory awareness of your surroundings. Through the use of the five senses, new perceptions can be developed and carried further into all aspects of the curriculum. The out of doors has proved to be one of the most interesting and fun-filled places to carry on these sensory awareness activities.

The intent of this workshop is to stimulate an interest in language arts and to develop the ability to communicate through the various means of expression. The suggested activities which follow will offer you and your students the chance to become learners together--if you accept the challenge to explore, imagine and create, using the out of doors as a classroom.

I. The use of the art of language is to hear and understand, talk and be understood, in other words, the art of communication. We need not be very skillful to hear, slightly more to talk, but comprehension and organization of one's thoughts for speaking are skills which may be learned, as are reading, spelling, writing, phonics and all other aspects of learning. Language Arts is the media of such learning. Many of our activities overlap because the area knows no limitations.

II. Most instructors as well as a majority of children seem more comfortable out of doors, unconstratined by four walls. Perhaps the discipline of learning can best begin here and be taken inside to pursue and develop. As sounds from the out of doors were heard, loved, and developed by copied musicians, so other disciplines can find their source in nature and be nurtured in the school room. Each of the following attributes or concepts may be enriched by language arts outdoors.

A. New stimuli for learning. For example, the desire to read for information.
B. Increased awareness of natural phenomena.
C. Improvement of self image by built-in success possible in outdoor program.
D. Organization and categorization of ideas and materials.
E. Developing new methods for giving directions and skill in following directions.
F. To increase and vary verbalization
G. Development of values -- help kids to think out different alternatives and consequences involved in decision making.
H. Creating a climate for recall.
I. Sensitizing for improved listening.
J. Development of investigative techniques for research.
K. Thoughtful reading attitude for whatever purpose, information or pleasure.

--Weather station log with a column for the weather saying, i.e., red sky at morning, sailor's warning, etc.
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III. We will remember that direct experience, rather than vicarious, satisfy curiosity and lend to meaningful learning. The following are specific activities designed for enriching four areas of Language Arts: reading, listening, spelling and expression (oral and written).

A. Reading

1. Keep a log of the walk or trip
2. Follow a nature trail, reading the signs. Then make a class trail, doing your own signs.
3. Have an outdoor poetry reading session.
4. Reading maps and making maps.
5. Visit an old cemetery. Read the epitaph, names,and dates.
6. Read "How to Do It" manuals and give the class an out door demonstration.
7. Make class charts of walks and trips.
8. Read about explorers and naturalists.
9. Have a treasure hunt. Give each group of three or four children printed directions from the school to 'treasure'. Each group will take crayons, pencil, paper. Go out the cafeteria exit. Walk down the path to the little playground. Turn right and walk along the edge by the trees. Stop at the tallest tree. Look all around the bottom. What do you find that doesn't belong there? The treasure will be something not indigenous to the area, like a shell, a piece of driftwood, a starfish, etc. One of the group will draw it, one will label, one will write and one will tell about their trip to the class.
10. Make up crossword puzzles from vocabulary learned

B. Listening, observing, receiving

1. Where to go? Giving and following directions.
2. Stop and listen. Close your eyes, ball your fists and count the different sounds you hear by extending a finger for each.
3. Be a player and a leader of outdoor games.
4. During a class walk ask children to "take a picture". Have them make a box with their fingers, look through and find the scene they like best for their picture. Let them study this small area to remember its arrangement. Then either sit down and sketch it or take their picture back in the class room and draw it from memory.
5. Lie back in a comfortable spot, feel the earth under you and see the sky above. Watch the clouds, their movement and shape.
6. Take a tape recorder along on a trip to the woods. Sit very quietly for two minutes, then turn it on. You may record the wind, bird songs, etc.
7. Players sit in a circle. The one starting the games says, "From where I stand I can see a gray birch." The next one says, "From where I stand I can see a gray birch and a black cherry." The next player repeats all the previous players have said, in exactly the same order, and adds another tree or bird. If anyone doubts the statement, he may challenge the speaker. Anyone caught unable to defend his statement drops out of the game.

C. Spelling, phonics, vocabulary enrichment

1. The root of the word ecology -- from two Greek words meaning "study of the home" opens up an infinitely greater wealth of consideration. All of the words necessary to use and understand in the out-of-doors give a richer vocabulary. Examplee: trail,swamp, ledge, geology, shelter, fossils,poison-ivy, counselor, fern, moss, glaciers -- the list is endless.
2. Proofread your own written work. If you're not sure of the spelling, ask!
3. Look around you or all the things you can find beginning with "B" (or any other consonant). Make a chart for your room.
4. What sounds do you hear? Try to put letters together for the sound of a stream, or a particular bird.
5. Riddles--"I am thinking of a tree that begins with M",etc.
6. Spelling Bee---Divide players into groups. Play the game with fall flowers, insects, or trees. Hold up a flower. The first in line must name it and give an intersting fact about it. If he fails, he must drop out of line. The side having the greatest number remaining wins. It is better to commence with the most common and well-known plants.
7. Nature Alphabet--This is played with "sides". The leader names a letter of the alphabet. Each player on each side in order name a bird, flower, or tree (decided upon before starting) which begins with that letter. Anyone who cannot do so in less than five seconds is out. No one is to name an object which has already been named. The team having the greatest number of players left at the end of a certain time is the winner, or the last group to name an object commencing with that letter wins one point for his team.
8. Sound Locater--A good woodsman can locate a sound quickly both as to direction and distance. As a preliminary training, have "it" stand with back to ten or twelve people. No person to be nearer another than ten feet. A leader points to someone who whistles. "It" turns around quickly and names the one who whistles. If correct, the whistler takes his place, or it many be scored by using the best average for ten trials. Outdoors, this may be tried by rustling autum leaves on the ground, by wading in water, by jumping in the sand, by dropping a stone a few feet away and having the person identify the stone, by snapping a twig, by taking three steps, and so on.

D. Written and Oral Expression

1. Collect interesting objects for a science table. Each child will tell about what he found and why he likes it. Research the object for identifying purposes.
2. A walk to a quiet spot, a few minutes contemplation, can provide the inspiration for creative writing. The Haiku, a three line, unrhymed composition of 5-7-5 syllables, is an excellent medium for spontaneous expression. Others could be the Cinquain and Diamete.
3. Experiences in nature provide the basis for written and oral expression. Walking to a stream, wading it, watching a chipmunk or the flight of a swallow, all must be experienced

and observed to become a part of a person. All outdoor happenings become the basis for written and oral expressions.

4. Postcards or letters asking permission or thanking for help.
5. Labeling and identifying.
6. Preparation and participation in original out-of-door drama.
7. Discussions of observations.
8. Poems and stories.
9. Class newspaper write-ups of outdoors experiences.
10. Interviews of conservationists.
11. Tapes describing the science table or nature walks.
12. Look for animal footprints. Make deductions and draw conclusions as to which animal made them.
13. Make foods for outdoor consumption by following simple recipes.
14. Make simple weather charts.
15. Pretend you are a Martian landing on our planet, and use different vocabulary to describe what you see. (You can't use the objects name.)

John Dewey has said that we cannot substitute a book for civilization. Alfred Whitehead warns of divorcing education from life. Outdoor education attempts to deal with realities, rather than second hand information. Language is a major tool of education; as the child progresses in language skill, he also develops in intellectual, social, and emotional capacities. He can develop well in all these areas in a rich and varied program of outdoor activities.

Summary

Teaching language arts in the out-of-doors is not a supplement to the classroom but an enrichment activity for further development of concepts learned in the classroom. A child who finds purpose and excitement in what he is doing will not only retain longer, but will produce a better product, one that is meaningful to him as well as his peers. The outdoors provides a natural, realistic setting for living these experiences.

Suggested Activities

-List sounds then classify into natural or man-made.
-Make a list of words describing one object then classify according to shape, color, texture, and size.
-An oral description of an object to be guessed by other students.
-Listen and record sounds to be compared with other members of group.
-Make a list of adjectives (i.e. rough, smooth, sharp), find or name an object and categorize accordingly.
-Tape record sounds to be used as a background for a story.
-Pupils take turns naming one thing at a time that can be seen from where they are sitting that has not been named before.
-Indepth study of a local cemetery.
-Keep a record of the effects of the seasons on an adopted tree or plant.
-Observing and recording movements of an insect or animal.
-Focus on different levels of perception, how well do you see your surroundings

-Developing a list of vocabulary words and their meanings.
-Field notes
-Write a description of snow, rain or wind storm.

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Haiku is a three line, seventeen-syllable poetic form which paints a verbal picture of an experience. Often, the poem relates something about a phenomenon which we may overlook or take for granted. It is the poet's way of conveying his inner most feelings about the world around him.

Because the poem is short, the reader must supply much of the meaning through his own past experiences. Each poem is like a pencil sketch which the observer may fill in with color or meaning. Each word that is used has a purpose and no word is used unnecessarily. For example:

The Message

Whirring wind drops in,
Gives a message of the wild,
Then passes away

Hilltop Breeze

Standing on a hill
A wind comes to visit me
Pushing leaves ahead

Winter Evening

Soft silhouetted
Bare branches cushioned by clouds
Fired by setting sun

The Wind

Restless, rattling leaves
Announce the coming of the wind
Trembling cowardly

OUTDOOR EDUCATION LESSON PLAN

TOPIC: USE OF SENSES

Objectives:

To develop an awareness of the environment outside the school building.
To sharpen the use of the five senses through firsthand experience.

Concepts:

There are many sounds outside.
There are many different things to be found on the ground.
Many things outside have different textures.
Some things outside have different tastes and smells.

Vocabulary:

Texture
Smell
Taste
See
Hear
Touch
Senses

Materials:

Wire ring
Paper bag filled with some items to be identified.

Instructional Procedure and Activites:

ASK--

1. What sounds do you hear? (cup hand behind ears)
2. Toss a ring on the ground - what can you find?
3. Find some items like twig, bark, rock, etc. Place in bag and have child identify by touch.
4. Taste wild onion.
5. Smell grass, soil, leaves, twigs, etc.

Evaluation:

Tell a story about what you heard, saw, felt, tasted, and smelled.

Tell about some things that can best be identified by seeing, by smelling, by hearing, by touching, or by tasting.

PHYSICAL EDUCATION

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PHYSICAL EDUCATION IN THE OUT OF DOORS

By: Peter Barnard, John Konowitz, Jerry LaVigne,
Laurie McCabe, Gail Schaeffer

Physical education in and from the out of doors is the utilization of all natural settings to meet the major objectives listed below. It is imperative that we keep in mind that the child's major objective is fun.

General Objectives

1. Experience the joy and beauty of the outdoors.

2. Cooperate and share with others the satisfaction of achieving a common goal.

3. Achieve a working understanding with others by living with them.

4. Stimulate interests in the outdoors.

5. Develop skills which will enable one to cope with any unplanned happenings.

6. Develop activities which can be carried out throughout one's lifetime.

7. Provide a successful and enjoyable experience which will increase the students' desire to participate in an outdoor experience.

8. To incorporate strength, flexibility, endurance, balance, agility, co-ordination, physical fitness, psychological and social aspects.

10. Have the students realize that if properly dressed one can experience great joy in any outdoor activity.

11. Challenge students.

12. Experience success.

13. Develop on appreciation for creatures that live and survive in the out doors.

14. Realize special precautions that have to be taken to avoid casualties or even avoid fatalities caused by adverse weather conditions.

15. Learn skills that will enable students to travel successfully by foot during all seasons.

16. Live in harmony in the outdoors.

17. Safety.

MOTIVATION TECHNIQUES

Motivation devices are important in the program as a stimulant and can be tied in as a preparation activity. As a lead in, a film on hiking and camping, or if someone may have some slides showing particular areas you're going into, is a good interest builder among the students. Guest speakers, such as a forest ranger or someone who is an authority on the location in which you are taking the students are helpful. Any students in the class who have had any hiking or camping experience also would be useful as a good indoor preparation.

The students may be able to make a scale model of a shelter they would like to stay in and then go out and try to reproduce the shelter. If tents are available, the students may be shown how to set them up as far as site, access to water and protection from wind and rain. The culminating activity before going out on the actual trip would be a day hike, receiving anything we had worked on up to that time. One important thing is that the students should feel that they have had some part in the actual planning of the trip.

SAFETY

1. The group leader should have complete knowledge of safety techniques in the outdoors.

2. Group leader will give directions pertaining to the area
    a) primary - safety can be taught through imitation of instructor.
    b) intermediate and secondary - students under the instructors guidance devise their own rules.

3. The instructor must be able to administer and enforce the necessary safety rules for his planned activity.

WARM WEATHER ACTIVITIES

Many things may be incorporated into a warm weather program. The students have a tremendous feeling for outdoor activities and the teacher may very well find an almost completely different child from the one he knows in the classroom. Most schools have an adequate outdoor facility where many of our games and activities can be enjoyed.

Before participating in outdoor activities there are many outdoor living skills that can be utilized. The motivation techniques named such things as firebuilding, shelter making, and day hiking. These can all be put into your main outdoor trip as lead up activities.

Once in the woods, safety is the first and most important thing to be stressed. Such things as staying with the group, keeping away from water, not eating anything they are not positive of and keeping away from dangerous places (cliffs, etc.) are very important.

Proper clothing is very important. For hiking, loose clothes for free movement are very important. Before entering the woods the footwear should be broken in to keep from getting blisters.

Good arch and ankle support should be stressed if at all possible and the shoes should have good tread on the soles. Two pairs of white athletic socks should be worn and an extra pair or two should be brought along and changed during mid-day or if the feet get wet. An extra pair of underwear should also be brought along. The pants should be loose fitting and of a durable quality. Dark colors seem to attract more bugs and insects than light. An undershirt is good to take. If going up an exposed mountain top, a wind breaker is good to have along. A baseball cap offers good protection for the eyes. If possible, a small day pack containing the extra socks, shirts, underwear, ponchos or raincoat, and first aid kit (include matches in it) can be taken along with the lunch and canteen or waterskin. Around the camp, an extra pair of shoes should be brought in to wear and warm clothes for sleeping should be with you.

Many things beside hiking can be done around the campsite. If there is a small pond or lake around, swimming, boating and canoeing can be utilized. This is an area where extreme caution and safety is a must. It would be a good idea to test each child's swimming ability and then determine whether or not he should be allowed to go in deep water to swim, to row a boat, or paddle a canoe. They should never go near the waterfront unsupervised. You should not over load, stand up or fool around in the boats. A swimming program should be set up for the non-swimmers.

Trails may be set up around the camp to follow using rock cairns or markers on trees. In an activity such as this, compasses may also be used. If at all possible, horses may also be utilized.

Many activities can be devised to compliment the above listed activities. The following games and activities can be implemented by using the materials provided by nature.

1. nature scavenger hunt

2. imitating insects or animals they see out of doors

3. creative movements inspired by trees, clouds, flowers etc.

4. spear throw - the pupils can prepare their spears by cutting saplings and using leaves as feathers as guides for spears. The contestants would compete for accuracy and distance.

5. shotput throw - the students can select rocks of different sizes

6. obstacle run - have students aid instructor in establishing a safe obstacle course. Rock cairns can be used to mark the course.

7. relay races - these can be on regular straight courses or through the obstacle course. The groups can carve their own batons.

8. broad jump - have pupils try to find a sandy spot or make a soft spot by digging out a hole and using leaves.

9. log carry - working in groups, students carry logs on their shoulders. Students can also participate in rolling logs with hands and feet.

10. tug of war - pupils can find vines and depending on strength of vines adjust the size of their group.

11. ring toss - the pupils can make their own rings from branches tying them with bark. Sticks are pushed into the ground for pegs.

12. pottsie - pupils can dig holes in the ground and select stones to toss in the pots.

13. compass course - groups follow given directions. First group to reach destination wins.

14. water boiling contest - team collects wood, builds fire and the first to boil water wins.

15. tent pitching - using small two man tents - set them up using speed and neatness as judging criteria.

16. hare and hound - hare (one student) is given ten minute head start. By leaving a trail of acorns, corn, leaves, etc. he is tracked and caught by hounds. Hounds may bark.

17. Activities
    a) walking
    b) games
    c) sports
    d) bicycling
    e) boating and canoeing
    f) horse back riding
    g) camping
    h) hiking
    i) swimming
    j) fishing
    k) following trail markers

WINTER ACTIVITIES

All or many of the following activities could be used right on the school grounds, rather it be rural or urban, as long as they have some kind of outside play ground area. Games, snow sculpturing hiking require no equipment at all. However the children will learn that they must be properly dressed to enjoy the activities (waterproof foot wear, warm clothing, mittens, hat and scarf etc.)

In most rural areas one can find a small hill right on school property or very close by to provide toboganing or sliding. Every one could enjoy sliding with very little equipment (cafeteria tray, cardboard box flattened, plastic sheet). A skating rink can be made on school property or most towns have a public rink that could be used.

These activities stress the necessity of proper fit of equipment. The students should learn the importance of equipment care and maintainance. They must also realize that these are different types of snow shoes for different snow conditions and terrain. They must also realize the difference in snow and weather conditions. Is it wet? Is it dry? Is it sunny, is it cold? This must be considered in waxing their skiis. These two activities may be used on both hilly or level terrain. They can be used in school grounds, a farmers field, a nearby wooded area or as a great activity for a field trip. Field trips allow students to observe nature in the winter at close range as well as enjoying exercise.

For sliding, skiing, snow shoeing, skating and hiking the class will realize the importance of light weight but warm clothing to enable them to move freely. They may want to add gators to their boots. They may also want glacier cream to protect their skin and glasses or goggles to protect eyes against sun glare.

If your winter activity takes you up a mountain they may learn that they would carry a light weight sleeping bag that protects against below zero weather in case some one becomes injured. They may want to wear long johns and tote an extra pair of socks and wind breaker. They will learn to pack a day pack that provides nourishment but is not heavy to carry.

If this trip is to be an overnight they will have to learn about waterproof, ligh weight equipment, equipment that is warm enough, how to carry and put on a heavier pack, dehydrated and high energy foods, and how and where to set up a winter camp. They should learn the importance of drinking plenty of liquid, salt, eating energy foods frequently and watch for signs of storms and what to do. They will learn that they must carry a light weight stove and fuel for emergency cooking in tent.

ACTIVITIES

1. snow shoeing
2. cross country skiing
3. winter hiking
4. snow sculpturing
5. polar bear picnic
6. tracking animals
7. ice skating
8. sliding or toboganing

9. fox and geese
10. angels in the snow
11. squirrel in the tree
12. hare and the hound
13. cross country skiing
14. cross country snow shoeing
15. shuttle relay
16. hiding seek or tracking people
17. snow ball rolling contest
18. winter field events such as snow ball throwing for distanc
19. fort or igloo building

These activities may all be incorporated into a winter carnival.

SUMMARY

Physical education in and from the out of doors has vast possibilities. One has only to look around him and use his or her imagination to utilize the limitless oppoptunities for learning in the great outdoors. To satisfy the objectives of the physical education program the activities must be geared to meet the physical and mental abilities of the group.

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HEALTH EDUCATION THROUGH THE OUT OF DOORS

By: Tom Jones, John Keuleman, Cecil O'Ree, Karl Hartmann, Phil Corell

I. Definitions

A. Health Education: The understanding of physical and mental well being and how it can be fostered and maintained.

B. Why the Out of Doors?

1. Man's physical and mental well being is directly dependent upon his total environment.

2. Obviously to do what one cannot do inside.

3. To reinforce previous skills taught within the classroom.

4. To learn from first hand experiences.

5. To offer a new learning situation.

6. To teach new skills and problem solving experiences.

C. Limitations

1. Outdoor activities should be relevant to previously discussed material.

2. Activities should not be so abstract as to hinder understanding.

II. Curriculum Areas

A. Pollution:

1. The silting of streams and reservoirs as a threat to water supplies.

2. Safe sewage disposal by towns and homes.

3. The adverse effect on the life cycle.

B. Physical Fitness:

1. Maintaining a proper level of activity.

2. Developing proper attitudes towards physical well being.

C. Sex Education:

1. Understanding the process of reproduction.

2. Relating this process of nature to man.

3. Developing healthy attitudes towards sex education.

D. Conservation:

1. Some health hazards can result from exploitation of resources, i.e., block cutting, swamp formation.

2. The destruction of beneficial species of wildlife.

E. Hygiene:

1. Maintaining proper bodily cleanliness.

2. Discussing the idea that different activities require suitable apparel.

F. Nutrition:

1. Preparing a healthy menu while camping or working in the out of doors.

2. Proper preparation of fun and games.

3. Selection of edible foods.

G. Safety Education:

1. Safety in recreation

2. Safety in work experience.

3. Developing proper attitudes toward safety.

H. Drugs:

1. Relating mis-use of drugs to mis-use of chemicals in nature.

I. Communicable Diseases:

1. Controling of disease related pests in our environment.

2. Inter-relationships concerning the spread of disease.

J. Mental Health:

1. The development of self-awareness and an awareness of others.

2. The developing of confidence within a varying environment.

K. Over Population:

1. Studying of population, relationship within a biome.

2. Relating nature's problems to the mankind.

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III. Suggested Activities

A. Pollution:

1. Visit Sanitary Landfill - Evaluate
2. Visit Water Purification Plant
3. Visit Sewage Treatment Plant.
4. Visit Sludge Bed at Paper Mill
5. Visit River Mouth to view erosion and life.
6. Conduct a re-cycling project.
7. Check own school for types and uses of fuel. Are they pollutants? Are there substitutes?
8. Trip to identify major sources of area pollution.
9. Clean-Up day.
10. Check own home for sources of pollution.
11. Visit a farm to check disposal of animal and human waste.

B. Physical Education:

1. Have students plan, organize and conduct an outdoor field day.
2. Take a mountain climbing trip.
    a) Study comparative pulse rates.
    b) Discuss physical signs of fatigue and exhaustion.
    c) Why are some students less effected by physical exertion?
3. Observe the activity of a young child. Try to copy the activities of a young child for five minutes.
4. Why do athletic teams encourage training rules.
    a) Visit a high school athletic practice.

C. Sex Education:

1. Field trip to observe various fertilization mechanisms and processes, i.e., pine cone, cattail, etc.
2. Visit to a farm to observe natural birth.
3. Visit fish hatchery.

4. Check insects for various stages of life.

5. Hatch chicks in your own room.

D. Conservation:

1. Visit local game warden and forest ranger.

2. Visit Miner Institute

3. Use Biltmore stick to measure diameter of tree and determine number of board feet.

4. Study mosquito breeding areas and discuss means of control.

5. Observe various degrees of land cover and make demonstration boxes for each.

6. Conduct erosion abatement project in a nearby area.

7. Discuss farm conservation techniques during a farm visit.

E. Hygiene:

1. Visit local health clinics.

2. Take a field trip during two seasons and compare various wearing apparel.

3. Take a winter field trip to observe the animals preparing for winter.

4. Take a camping trip to practice proper techniques of cleanliness and campsite sanitation.

F. Nutrition:

1. Check height and weight of class during course of year.

2. Take a field trip to identify edible wild plants.

3. Prepare balanced diet and take cookout trip.

4. Plan a school's menu and observe a daily preparation.

5. Disect an animal's stomach and observe what it feeds on.

6. Visit local markets and grocery stores and study storage facilities.

7. Study food spoilage under microscope.
8. Try preserving meat through smoking, salting, or drying.

G. Safety Education:

1. Visit construction site and observe safety measures.
2. Examine value of present school safety rules.
3. Visit fire tower and discuss safe fire building techniques.
4. Identify poisonous plants and insects of the area during a field excursion.
5. Take a bicycle trip and discuss.

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SCIENCE

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HIGH SCHOOL SCIENCE IN THE OUTDOORS

By: Joe Sarage, Marie Laflar, Kathleen Purdy

Definition - The subject of this project is high school science which includes numerous subject areas. Since we are limited with only three people, we shall focus on Earth Science, Physics and Biology. We hope that a more thorough treatment of these areas as well as the many other subjects of high school science will be assembled in the future. A plethora of ideas and materials are available but their assemblage in a series of pamphlets which could direct us to them would be very desirable.

As you may already realize there are a number of fields of science that, in the evolution of specialization, have come to focus on particular aspects of the natural earth, its processes, and its environment. Despite specialization, many threads, both in subject matter and method of investigation continue to bind the several fields together. The cementing agent is the earth itself.

There is a great need for more emphasis upon the teaching of the earth and its environment in the outdoors. There are all the worthy reasons such as re-enforcement of classroom learning, motivation and enjoyment, but my belief is that outdoor learning is the best means of teaching our children, in fact all ages, an awareness of the importance of our natural world. It will be through the efforts of many such "aware" people that the problems of our environment shall be solved.

The following are quotes from three famous men:

> "When you try to make everything clear by reason, you some how only succeed in making everything confusion. Once you introduce a single mystery, everything else becomes clear in the light of that one mystery."
>
> Fulton J. Sheen

> "Love all God's creation, both the whole and every grain of sand, Love every leaf, every ray of light. Love the animals, love the plants, love each separate thing. If thou love each thing thou wilt perceive the mystery of God in all: and when once thou perceives this, thou wilt thence forward grow each day to a full or understanding of it. Until thou come at last to love the whole world with a love that will then be all-embracing and universal."
>
> Fyodor Dostoevski

> "The most beautiful experience we can have is the most mysterious. It is the fundamental emotion which stands at the cradle of true art and true science. A knowledge of the existence of something we cannot penetrate, our perceptions of the profoundest reason and the most radiant beauty, which only in their most primitive forms are accessible to our mind - it is this knowledge and this emotion that constitute true religiosity; in this sense, and in this alone, I am a deeply religious man."
>
> Albert Einstein

You'll notice that all these men speak of mystery - that intangible feeling that nature so readily gives us. If, indeed, it is the most beautiful experience we can have, then this in itself is enough reason for teaching in the out-of-doors.

Concepts - The following concepts are paraphrased from the behavioral themes of the Earth Science Curriculum Project, which I believe are excellent when dealing with all sciences. The first theme concerns science as inquiry. The body of scientific knowledge at any given moment represents only one stage in man's efforts to understand and explain the universe. Today's useful theories may be the half-truths of tomorrow. In this approach, science is presented as inquiry, as search for new and more accurate knowledge, At times we should focus on the frontiers of scientific knowledge where unsolved problems still abound - the intellectual new horizons of the modern world of science.

The second theme is the comprehension of scale. In science we can help the student develop concepts of scale in the real world and in models, and develop skill in devising and using models.

The third theme is the prediction of processes and results, relationships, and future events, which is one of the goals of most scientific inquiry.

The conceptual themes include the following.

1. Universality of change - The earth is a dynamic planet. Nothing about it is truly static, and none of its features will endure forever. Materials and life on this earth are constantly undergoing change.

2. Flow of energy in the universe - The universality of change in earth materials results from continuous redistribution of energy. Energy in a system tends to dissipate, and a gain in energy can occur only if more energy is supplied to the system.

3. Adjustment to environmental change - All natural systems tend to move toward a state of equilibrium. Opposing forces in a system cause reactions that ultimately bring about a dymanic balance. Stress applied to a system a equilibrium causes change that tends to neutralize the effect of the stress.

4. Conservation of mass and energy in the universe - The sum of mass and energy in the universe remains constant. Interactions in nature result in transformations of energy from one form to another and in transformations of matter to energy and vice versa.

5. Earth systems in space and time - Understanding almost any aspect of the earth requires considering the physical, chemical, and biologic nature of its parts and their relationship among parts of the whole must also be estabolished. All matter exists in time and space and is subject to changes that occur at varying rates and in varying patterns.

6. Uniformity of process: a key to interpreting the past - The fundamental physical processes and chemical reactions operating today are assured to have operated throughout earth history.

In order to have these themes attained, it must be remembered that the activities must be student-centered, Each student must be an active participant - observing, measuring, interpreting, and discussing, Do not rob the child of his opportunity to investigate for himself. If the student is to come to grips with his environment and to understand it, no amount of reading and talking can take the place of observing and investigating. We do not want the student to be merely an absorber of facts. We want him to be enthusiastic and curious about the world in which he lives.

Earth Science

A. Definition. Some science topics included in Earth Science, and in this outline, are as follows: weather and climate, the atmosphere, geology, seasons, structure of the eath particularly processes that shaped earth's surface, solar energy and its conversion to other forms of energy, modification of the environment, celestial observations.

B. Concepts. Only a few concepts relating to Earth Science are included here, while others will readily occur to an Earth Science teacher as being suitably taught by outdoor experiences. The numbering system here is related to the numbering system in part C of this outline,
   1. Observations involve the interaction of the senses with the environment, and can be extended by use of instruments.

   2. Many earth processes reflect cyclical changes.

   3. The characteristics of a position can be measured and described.

   4. The sun is the major source of energy which drives earth systems

   5. Change is a natural state of the environment.

C. Outdoor activities suggested for curriculum enrichment in the above concepts.

1. See Concept 1 above:

   a. Throw a hula hoop on the ground any place and ask members of a group of no more than four students to make observations of the enclosed area, using their senses only.

   b. Have students close their eyes and feel of tree trunks; then describe or compare the various trees. Do the same for leaves.

   c. When outdoors ask: How many colors do you see?

   d. Observe a mud puddle or area of pavement and ask, "What is happening here?" After visual observations have been made bring out thermometers, meter sticks, cameras for time-lapse photography, or make artificial puddles either for controls or to show layering or run-off patterns.

   e. From any outdoor observation point ask students to classify things they see as solids, liquids, or gases.

   f. Calculate: Distance walked, width of a stream, height of a tree or its diameter or circumference.

2. See Concept 2. above:

   a. Regarding the water cycle, over a period of several hours or days observe (and measure if possible) changes in amount of moisture in available outdoor areas: surface water such as on sidewalks or streets; puddles; relative humidity of air; level of streams or ponds; types and persistence of clouds.

   b. To understand seasons, plot the positions of the sun each hour on these days: Sept. 20, Oct. 20, Nov.20, Dec. 22, etc. preferably a transparent plastic hemisphere.

   c. Look for evidence of layering in rocks, particularly near roads cut through hills and try to determine the sequence of events that occurred in the area.

   d. Visit a cemetery, The nature of tombstone, with their dates, allows study of weathering rates.

   e. Search outdoors for exanples of evaporation and of condensation, the processes which make up our water cycle.

   f. Record changes that occur while you watch; example, formation or dispersion of clouds.

3. See Concept 3 above:

   a. Using air thermometers take temperatures at ground level, 10 feet high, and 20 feet high; also higher if it can be done away from building.

   b. If there is a pond nearby, get temperatures at bottom, at various depths, at center and edges of the pond. Graph results with temperature on the vertical axis and depths on the horizontal axis. Try to devise more and more accurate ways to obtain good results.

c. Take measurements of land levels and derive a contour map of any nearby land or of school grounds. A model in a shoe box can also be made of the land form.

d. On a clear evening help the students orient themselves when observing the sky, using star charts for the appropriate month. Observing the sky, using stars at different times, measuring vertical angles if instruments are available; otherwise estimate them. Some shift of postion should be detectable for all stars within a two-hour period, except Polaris of course.

e. Observe moon's path over several months. Estimate future positons of moon during full, quarter, and new phases.

f. How many different kinds of rocks can you find along a pond edge?

4. See Concept 4. above:

a. Using a simple handmade spectroscope aim the slit toward the bright sky and sketch what is seen using colored pencils.

b. Next add blue and/or red cellophane over the slit while pointing the spectroscope at the sky.

c. Search for examples of conduction, convection and radiation outside the classroom building.

d. Try to determine which kinds of soils or stones or building materials or pavements absorb or lose heat the quickest.

e. At different times of the year have students determine the altitude of the sun at high noon and the earth temperatures at the same times. Draw some inferences about the results.

f. Weather watch: using homemade and/or purchased instruments for student observations they can graph the more important daily weather variables.

g. Search for examples in the immediate area of greater energy consumption than there is energy production. Remember the amount of energy is reduced with progressive consumption. Example: A field producing eight tons of grass per year may sustain a 1,000 lb. cow for a year, and 500 usable pounds of that animal may sustain a man weighing 200 pounds for one year. *

5. See Concept 5 above:

a. Find samples of topsoil and of subsoil; then try to generalize effects of weathering on the parent rock.

b. Try to find rocks that have been transported and speculate how the transportation took place.

c. To familiarize students with local rock typed, try to find and distinguish between sedimentary and non-sedimentary rocks,

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* This example taken from speech by Dr. John Weeks, Aug.14, 1972.

d. Find evidences that people or other animals have caused changes in earth's crust.

e. In a given outdoor area try to predict the scope and direction of change during the coming week; during the next month.

f. In the immediate area of the school detect the nature of pollutants being added to the environment, and how they vary with time of day or seasons.

Physics

Science as defined in Webster's Dictionary is a "systemitized knowledge of nature derived from observation, study, and experimentation." It is one way of solving problems dealing with nature. It is not the only way, but on which orders facts in a way which can be used to solve the problems through the use of reason. Physics is a part of science which deals with the properties, changes, and interactions of matter and energy. It does not deal with life forces and partially deals with chemical bonding. However this is thoroughly covered in chemistry and not dealt with here. Physics is generally broken down into eight or more areas. These usually include at least the following: Mechanics, Thermodynamics, Electricity, Magnetism, Sound, Light, Astromony, and Atomic Physics.

The limitations of physics are the same as that of all sciences. They are the limits of observation, of experiments, and of reason. We are limited in observation by our senses and our size, The eye can only see something so small or so large. We can only hear so faintly. Even instruments are limited in their presision. We are also of a particular size and cannot get to some places we wish to observe firsthand. We cannot look directly at atoms and we cannot visit the faraway planets and stars. There is also a limit on the objectivity of our information. At some point and on some level the observer becomes part of that being observed. Therefore the objective nature of observation is limited to that extent.

We are also limited as to the number of times and different ways we can do our experiments. A theory is never totally correct or incorrect as long as every conceivable experiment has not been carried out. This is impossible to do for any theory.

Finally we are limited by reason itself. Man's ability to make judgements and to use his imagination put limits on every idea and on every theory. In some cases reason itself can no longer be applied when we reach the limits of reality and our ability to think. These then are the limits of physics.

In the study of any subject one must be acquainted firsthand with that which one studies for any real learning to take place. This is in particularly true in the case of science and physics. Nature is our field of study. To study it you must experience and experiment with nature. This is the only way to real learning.

It can partially take place within a classroom but to get the real feel for nature and the world you must be outdoors. Any cirriculum not taking advantage of the outdoors. can only be partially successful at best.

Physics Activities Outdoors

The following is a list of different activities I thought might be useful in teaching various aspects of physics outdoors. The list is by no means complete and one with a stronger imagination than myself could probably think of many more. There are two types of activities listed. There is the demonstration explanation type and problem solving.

Demonstration-Explanation

1. Using rocks on hills to demonstrate potential energy. Roll down hills.
2. Demonstrate conservation of energy in cycle or rain.
3. Show conservation of energy in trees and growth and death.
4. Demonstrate gravity in how objects collect at various places on hills.
5. Drop stones off cliff and show relation of mass to gravity.
6. Demonstrate center of gravity using trees, sticks, rocks, etc.
7. Visit an electric plant to see how power is produced.
8. Demonstrate wave principles on pond or lake.

Problem Solving (Can be used as demonstration also)

1. Measure energy or wind. Build windmill.
2. Measure energy of stream. Build water wheel.
3. Try to determine speed of bird in flight.
4. Try to develops a formula for gravity by dropping thing off roofs or cliffs and timing their fall.
5. Use automobiles to do problems of speed and acceleration.
6. Try to discover why a fly walks on the ceiling.
7. Make a power generator at a small waterfall.
8. Do problems of physics textbooks outside to help visualize them better.
9. Find amount of friction in sliding a board across the ground.
10. Try to discover what centripetal and centrifugal force is with materials outside.
11. Have kids try to demonstrate momentum and the difficulty of stopping a moving object.
12. Show that the sun has heat energy.
13. Try to have children devise methods to do some of the classic experiments of physics outdoors.

Biology

The Biology Syllabus for the state of New York includes a basic core of seven units and extended areas. The core is comprised of the following units: The Study of Life, Maintenance in Animals, Maintenance in Plants, Reproduction and Development, Transmission of Traits from Generation to Generation, Evolution and Diversity, and Plants and Animals in Their Environment. The remaining thirty per cent of the course is to be used in developing three of the extended areas. They include: Biochemistry, Human Physiology, Reproduction and Development, Modern Genetics, Modern Evolution Theory, and Ecology.

To explain the understandings and fundamental concepts of biology, I shall refer the reader to the Biology Syllabus, since 109 pages are too copious to reproduce. If you are interested, you may also refer to the Biological Sciences Curriculum Study, Blue, Green and Yellow versions.

As you may already assume, the biological activities that can be performed outdoors are almost infinite. The only limits are your imagination and the time to read and find the literature available. For each outdoor session I would suggest the following outline if applicable.

1. Investigation of the area of field study through topographic maps, 7½ minute series, hydrographic charts, etc.
2. Planning session; small group work to prepare materials for the gathering of specimens, collection, preservation, display, classification.
3. Reporting session; display of materials, field log of events, evaluation of small group planning and effectiveness, suggestions for improvement, contribution to class museum.
4. Plan as many field experiences as possible. Try to include a lake, stream, or pond; and estuary or mud flat; a forest and meadow; and a bog or marsh.

Activities: Water

1. Using drift cards, study, map and measure local wave-produced currents.
2. Utilizing old and new maps, determine the extent and nature of geographical changes along the coastline.
3. Make a photographic record of seasonal changes in beach configurations.
4. Use a recording tidal gauge and tidal staff to record outdoor phenomena.
5. Observe local surface currents with drift cards and dye markers.
6. Measure sub-surface currents with a current and flow meter.
7. Study seasonal variations in local currents.
8. Using a hand borer, note seasonal variations in sediment deposition as influenced by changing bottom currents.
9. Observe residual tidal response among organisms removed to a lab tank.
10. Make an analytical study of local tides by plotting maregrams.
11. Make a photographic study of extreme tides at a particular location.
12. Make a photographic study of local erosion problems.
13. Making use of a calibrated hand lead, map the local underseascape.
14. Make a comparative study of the salinity of an ocean and a bay.
15. Do quantitative and qualitative analyses of salinity using a water test kit.
16. Adjust a salt water killfish to a fresh water tank.
17. Using a bacterial sampler, make surveys of local waters.
18. Using drift cards, trace the course taken by the discharge of the local garbage plant.

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13. Make collections of the plant and animal life in your area. First determine which ones are scarce and therefore left in nature.
14. Find out about the food of animals observed in a particular habitat and construct a diagram of the food web of that habitat. Similar diagrams may be constructed to indicate the food webs in surrounding habitats. It will soon be apparent that certain animals will cross from one food web to another, producing seeding relationships among several habitat communities.
15. Examine a rock where lichens are growing. Study symbiosis and the effect of the lichen upon the rock.
16. Count the number of different species of plants living in each layer of a forest plot.
17. Count the number of each species of plant growing in a particular plot.
18. Determine the daily temperature changes in two different types of habitats. Determine soil temperatures at the surface and at depth. Determine the relationship, if any, between the soil temperatures and the types of plants growing in a plant community.
19. Place cans of water in various types of plant environments and determine the rate of evaporation.
20. Determine the moisture content of the air near the ground in different plant communities by means of colbalt chloride strips.
21. Determine the water content of the soil. Weigh a coffee can of soil and then use infrared heat lamps to dry it. Weigh it again and determine the percentage of water.
22. Use a photographic light meter and a piece of white paper to find the light intensity on the ground in various habitats on a sunny day.
23. Determine the differences in plant populations between places with high and low light intensities. Make a list of the species that seem unable to live in low intensities of light.
24. Determine the relationship, if any, between light intensity and soil temperatute.
25. Determine the relationship, if any, between light intensity and rate of evaporation.
26. Determine the acidity of soils in various habitats by using any of the kits available from supply houses.
27. A group plant ecology survey of a small habitat. It could include the following: (1) Census of all plant life in the habitat. (2) Determination of the physical factors in the environment: a- soil acidity b- Humus content of soil c- Average water content of the soil d- Rate of evaporation e- Rate of water penetration into the soil f- Depth of topsoil g- Soil temperatures h- Average light intencity at ground i- Average relative humidity,
28. Prepare plant census lists of habitats found on the school property. This might include the following: a clump of trees. a dense wooded area, a base planting of shrubs, a portion of the lawn that is mowed regularly, the edge of a well-trodden gravel walk, a steep slope in a field, the edge of a stream, or cracks in the sidewalk or blacktop.
29. Study the zonal arrangement of plant communities around a pond.
30. Determine which species of plants and animals lived in your forests during the pioneer days and which are still present.
31. Make soil profiles of habitats in your area.
32. Determine the rate of decomposition of organic matter to form humus.

19. Identify the major local pollutant.
20. Measure the carbon dioxide and oxygen of various types of water bodies over a 24 hour period; across seasons; a year. Graph changes. Use water test kit and sampler.
21. Using a water sampler, measure carbon dioxide and oxygen levels at various depths. Chart results.
22. Using a wet table, cold table aquaria, learn to culture local life forms under lab conditions
23. Take depth samples at various times during the day to plot graphically, vertical migrations of plankton.
24. Open stomachs of plankton eaters and note their contents.
25. Plankton samples can be collected in all seasons using nets, ring and bridle, and buckets.
26. Collect, identify, and preserve local algae using a collection and preservation kit and a sea weed collection kit.
27. Extract carageenin from Irish moss. Use it in the preparation of a chocolate dessert.
28. Make a chromatographic study of algal pigments.
29. Identify the organisms in local phytoplankton using a field guide.
30. Study succession along the banks of a pond.
31. Visit the local state fish hatchery.
32. Test the brooks and streams in suspected areas of sewage pollution and report your findings to your local health board officer..

Land

1. Study the effect of air upon root growth.
2. Develop an experimental garden plot on your school site and test the growth of plants in various enriched or depleted soils. You might also like to try growing irradiated seeds.
3. Study forest succession and if there is a recently burned area available, make sure you visit it.
4. Study the effect of competition between two different species of seedlings.
5. Make an earthworm count in a given size plot through the use of electrodes.
6. Plant leguminous plants in garden soil and in vermiculite to illustrate nitrogen-fixing bacteria live in the soil.
7. Study the ecology of a dead tree or rotting log.
8. Make interchange transplants from two different types of environments and make frequent observations over a period of several weeks to determine what kinds of plants can survive in their new environment.
9. Study competition among crops as to their yields.
10. Study the effect of the competition for light in various trees in a forest.
11. Determine which species of plant life live in the forest as opposed to open meadowland.
12. Apply a weed killer to a small patch of school lawn and later compare the size and vigor of the grass plants in the treated area with those in the untreated area.

33. Determine the humus content of soil.
34. Visit your local sanitary land fill and determine if it is properly maintained to prevent pollution.
35. Visit your local cemeteries. Determine the number of deaths during the year 1918 and compare it with a government census of that time. You can obtain a reasonable accurate account of people who died in the flu epidemic of that year, if you compare it with another period, say ten years before. You can also determine the large number of people that didn't live to adulthood.
36. Study the effect of mulch on soil loss.
37. After a heavy rainfall collect water from a stream that drains from a pasture and from a stream that drains from a woodland.
38. Study the effects of fires on trees.
39. Study the effect of landslides upon plant life.
40. Survey the school property for signs of tree diseases.
41. Go snowshoeing in the winter to observe animal tracks.
42. Look for animal signs in the area, such as tracks and scat.
43. Determine why dandelions and plantain survive droughts better. than most grasses. The reasons for this can easily be shown.
44. Test the vitamin content of cultivated plants as opposed to those obtained from nature.
45. Make recordings of the bird species in your schoolyard.
46. Use photography in unlimited ways. Students find it very rewarding.
47. If students are interested in identifying, teach them how to use a key. Many of them like to display their specimens for younger children.
48. Do art work with natural materials. There is time for it and students consider it a real treat.

WATER AND ITS IMPORTANCE IN THE ECOLOGICAL SYSTEMS OF THE WORLD

By: Laura Gouthreau, Peggy Huchro, Gerald Branche, Ken Mosher

Ecology is the study of the interchanging relationships and interdependence of living things to each other and to their environment. Our environment can be considered a web consisting of all the living and non-living processes which represent a separate point on this web where strands come together. Pull at any individual strand and the whole web is affected.

Since man is at the highest point in the life chain, he exerts control over all factors of the environment. In his attempt to improve his own environment he adversely affects the balance of the environmental web. It is our intent to provide some ideas which indicate that man must be more aware of his control and responsibilities to his environment in order that he and all other forms of life might survive in harmony.

Because water is one of the most important strands in our environmental web and one which is most at the mercy of man, he must be more aware of his interrelationship with this strand.

Water is a renewable, but finite resource which therefore places limits on all natural processes that can be supported on the earth. For this reason we have limited our project to the presentation of some basic concepts of the water cycle.

The basic water cycle is "sea ⟶ cloud ⟶ earth." Water from the sea evaporates into clouds; from the clouds it condenses and comes to the earth for storage and use; then the water returns to the sea for the start of the cycle again.

THE FOLLOWING IS A SUGGESTED LIST OF ACTIVITIES OR DISCUSSIONS RELATED TO ECOLOGY AND ITS SUBTOPIC, WATER. THEY ARE GROUPED TO APPROXIMATELY THE PRIMARY, INTERMEDIATE, AND JUNIOR HIGH LEVELS

PRIMARY

a. In what ways do plants and animals and people depend on sunshine, snow, and rain? For what purposes do we use water at school? At home? In the city? On a farm? How are water and air affected by plants, animals, people, and soil? What happens to rain and snow when they fall on the soil? How does snow affect people in the city? In the country?

b. Take a walk in the rain to observe how rain strikes the soil, sidewalk, grass, and trees. How soil moves with surface water, how rain drops cling to leaves, and how leaves cushion the force of raindrops, thus protecting the soil.

c. Take a walk when it is snowing. Collect snow and determine how much snow it takes to make a cup of water. Find out what happens to the water when snow melts in the city and in the country.

d. Discuss the uses of water in relation to every day activities of plant, animals, and man. This can be dramatized via murals, skits, etc.

e. Visit an industry in your community to observe its use of water.

f. Measure the amount of sediment in a jar of water taken from a stream immediately after a rainstorm and measure the amount of sediment in water from the same stream a week after the rainstorm. Allow the water to stand for about 24 hours before measuring and comparing the amounts of sediment found in each jar.

g. Develop a list of the ways that people use water carelessly.

h. In what forms have you seen water? What causes the water to change form, and how do the different forms affect human activities?

i. What is sediment? How does sediment in rivers and lakes affect fish and wildlife? The water you use everyday?

j. Select a plant and an animal found on the school site; explain what they need in relation to water.

k. Build a balanced aquarium or terrarium and then change one element at a time to determine the effect on the environment.

l. Compare the water running off a bare slope with water running off a grass-covered slope during a gentle rain. Collect a jar of water from both areas and compare the amount of sediment in each.

m. Start a school garden with different kinds of plants. Learn how to manage soil and water resources to encourage the growth of these plants.

INTERMEDIATE GRADES

a. What is a watershed? Does the way the land is used in a watershed affect water in small streams? In rivers?

b. What happens to water when it falls on the pavement? Rooftops? Soil? What determines how much water runs off and how much soaks into the soil? How do the different kinds and amounts of plant cover help water soak into the soil? Does water soak into frozen soil?

c. What happens to water once it enters the soil? Why is ground water important to plants and to people?

d. How does the amount of soil that washes off unprotected land into streams, rivers, and lakes affect your water supply?

e. Visit a cutover or burned-over forest, a building site or subdivision where topsoil is being washed away. Determine how the sediment laden water drains to a stream and what affect it may have on your water supply and the people and towns farther down stream.

f. Visit the city's water supply plant. Where does the water come from? Does the water have to be treated before it can be used by the people? Why?

A GLOSSARY OF ECOLOGICAL VOCABULARY

ACCELERATED EROSION - Washing away or blowing away of soil material in excess of normal erosion resulting from changes in the vegetation cover or ground conditions.

AMPHIBIA - A class of vertebrates comprising of frogs, toads, salamanders, newts, and related animals, most of which spend part of their life cycle in water.

AMPHIBIOUS - Refers to organisms that can live in water or on land.

AMPLITUDE - The range of an environment condition or complex of conditions in which an organism can exist or in which a process occurs.

ANTECEDENT MOISTURE - The degree of wetness of the soil at the beginning of a run-off period.

ANTHROPOPHILOUS - Refers to influences caused by man, e.g. cultivation.

AQUIFER - Aquefens soil or geological formation lying between impermeable strata in which water may move for long distances, yields ground water to springs and wells.

ARID - Refers to regions or climates which lack sufficient moisture for crop production without irrigation, precipitation 10 inches or less in cool regions, up to 15 or 20 inches in tropical regions.

BALANCE OF NATURE - The state in an Ecosystem when the interrelationships of organisms to one another and to their environment are harmonious or integrated to a considerable degree.

BANK STORAGE - Water absorbed by the bed and banks of a stream and return in whole or in part after the ground water level falls.

BASE FLOW - Stream flow originating from subterranean sources in contrast to flow from surface run-off.

BASE LEVEL - The lowest level to which a land surface can be reduced by streams, the permanent base level is the level of the sea.

BAYOU - A marshy body of water caused by seepage, lack of drainage, floods, tributary to a stream or lake, in flat country. A term used in the Gulf Coast region and in the lower Mississippi Region basin.

BOG - An undrained or imperfectly drained area, with a vegetation complex composed of sedges, shrubs and sphagnus mosses.

CHUTE - A high velocity conduit for conveying water to a lower level without causing erosion because of excessive velocity and turbulence.

CLIMATE - The aggregate of all atmospheric or meteorological influences, principally moisture, temperature, wind, pressure, and evaporation, which combine to characterize a region.

COFFER-DAM - A barrier constructed in a body of water so as to form an enclosure from which the water is pumped, to permit free access to the area within.

CONSUMPTIVE USE - The quantity of water used and transpired by vegetation plus the amount lost by evaporation.

CONTOUR STRIP CROPPING OR FARMING - The growth of crops on the strips between contour lines, at right angles to the slope. Strips of grass or other plants may be grown in alternation with the cultivated crops. A conservation practice to control or eliminate run off and erosion and permit greater infiltration of water.

CORRAISION - The process by which flowing water carring solid material wears away underlying rock, e.g. a stream carrying gravel and sand.

CREEK - A stream that is intermediate between a river and a brook.

DENUDATION - The processes by which the surface of the earth is worn away, including rainfall, wind, erosion,waves, tides, frost action heating by the sun, etc.

DEW POINT - The temperature at which a certain body of air is capable of holding no additional water vapor, so that any decrease in temperature or any increase in water vapor will result in condensation of the vapor into liquid water at this point the Relative Humidity is 100 percent and the saturation deficit is zero.

DROUGHT - An extended period of dryness, usually any period of moisture deficiency that is below normal for a specific area.

ECOLOGICAL FACTOR - Any part or condition of the environment that influences the life of one or more organisms.

ECOLOGY - The study of the interrelationships or organisms to one another and to the environment.

ECOSYSTEM - The community including all the component organisms together with the abietic environment, forming an interacting system.

EFFLUENT - The outflow of water from subterranean storage.

EROSION - The detachment and movement of particles of the land surface by wind, water, ice or earth movements such as land slides and creep.

EVAPORATE - To turn to vapor.

EVAPORATIVE POWER OF THE AIR - The environmental factor complex including factors such as temperature, relative humidity, and wind that influence the evaporation of water from organisms and from other bodies containing water.

EVAPOTRANSPIRATION - The sum total of water lost from the land by evaporation and plant Transpiration.

FLOOD PLAIN - The nearly level land forming the bottom of a valley in which a stream is present and usually subject to flooding.

FOG - The condensation of water vapor on particles of dust or smoke particles.

GLACIATION - The covering of an area by a glacier or by an ice sheet, or the geological action of the glacial ice upon the land.

GRAVITATIONAL WATER - Water in large pores in the soil which drains away under the force of gravity when under drainage is free.

GROUND WATER - Water standing in or moving through the soil and underlying strata, the source of water in springs and wells.

GULLY EROSION - Removal of stones, gravel and finer material by running water with the formation of channels that cannot be smoothed out completely by ordinary cultivation.

HABITAT - The sum total of environmental conditions of a specific place that is occupied by an organism, by population or a community.

HOLARD - Term used to designate the total water content of the soil.

HUMIDITY, ABSOLUTE - The actual quantity of water vapor present in a given volume of air, usually expressed in grams per cubic meter.

HUMIDITY, RELATIVE - The ratio of the actual amount of water vapor present in a unit pertien of the atmosphere to the quantity which would be present when saturated.

HYDROGRAPHY - The study of natural bodies of water such as lakes, rivers, and seas, especially their physical characteristics in contrast to the biological qualities.

HYDROLOGIC CYCLE - The cycle of the movement of water from the atmosphere by precipitation to the earth and its return to the atmosphere by interception, evaporation, run-off, infiltration percelatien, storage, and transpiration.

HYDROLOGY - The science of water and snow, including their properties and distribution.

HYDROPHILOUS - Refers to a plant that grows well in water or wet land.

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HYDROSPHERE - The parts of the earth covered with water including streams, lakes, oceans, etc.

IMPOUNDMENT - An artifical lake or pond.

INFILTRATION - The penetration of water into soil or other material.

LIMNOLOGY - The branch of biology that deals with fresh waters and the organisms in them.

LOTIC - Refers to running water as in a creek.

MARSH - A swamp in which grasses, sedges, catttails or rushes form the dominant vegetation.

MESOSAPROBIC - Refers to an aquatic environment in which the oxygen content is considerably reduced and in which much decomposition of organic materials is taking place.

NORMAL EROSION - The erosion that occurs on land under natural environmental conditions not disturbed by human activities, mental conditions.

OLIGOTRPHIC - Refers to ponds and lakes that are low in content of basic nutritive substances for plants, lacking a distinct stratification of dissolved oxygen in summer or winter.

OUTWASH, GLACIAL - Material carried by streams of melted water from a glacier and deposited in the form of plains, deltas.

PELAGIC - Refers to the open water of the ocean, lacking association with the shore or the bottom.

PERCOLATION - The downward movement of water in the soil, especially in saturated or nearly saturated soil.

PERMAFROST - Permanently frozen ground in artic and subartic regions.

PERMEABILITY - The property or condition of the soil that relates to the passage of water or air through it.

PLUVIAL - Refers to rain.

PRECIPITATION - (1) A general term for all forms of falling moisture including rain, snow, hail, sleet, or modifications of them. (2) The quantity of water that is precipitated. (3) The process in which water as a liquid is discharged from the atmosphere upon land or water.

RAINFALL - The total amount of precipitation including rain, snow, hail, and other forms.

RAIN GUAGE - An instrument to measure the amount of rainfall.

RAVINE - An elongated,narrow depression, larger than a gully, usually formed by running water.

RUN-OFF - The part of precipitation which as surface run-off flows off the land without sinking into the soil and the part that enters the ground and passes through into surface streams as groundwater run-off.

SALINITY - The quality of saltness in sea water or fresh water, most commonly expressed in parts of dissolved salt per 1000 parts ow water.

SECOND FOOT - A measuring unit for the volume of the flow of water expressed in cubic feet per second.

SEEPAGE - (1) The water that passes through or emerges from the ground along a line or surface in contrast to a spring where the water emerges from a localized spot. (2) The process by which water passes through the soil.

SILTING - The deposition of water-borne sediments in bodies of water caused usually by a decrease in the velocity of the water movement.

SNOW DENSITY - The water content of snow expressed as a percentage by volume.

SOIL EROSION - The loosening and movement of particles of soil from the surface of the land by wind or flowing water, including accelerated erosion and normal erosion.

SPLASH EROSION - The direct effect of the impact of rain drops on the ground surface or on a thin film of water causing detachment of soil particles which are then readily available for washing away.

STILLING BASIS - An excavation or structure below a waterfall or rapids that reduces the velocity and turbulence of the current.

STREAM - A general term for water flowing in one direction such as a brook, creek, and river.

STRIP CROPPING - The growing of crops in narrow fields or strips so that wind and water erosion is reduced or prevented.

SUBIRRIGATION - The control of the water table so as to raise it near or into the root zone.

SUCCESSION (ECOLOGICAL) - The replacement of one kind of Community by another kind.

SWAMP - A land area containing excessive water much of the year and covered with dense native vegetation that includes trees, but the term is used with various meanings.

TOPOGRAPHY - A general term to include characteristics of the ground surface such as plains, hills, and mountains.

TRANSPIRATION - The loss of water in vapor form from a plant.

TURBIDITY - The condition of a body of water that contains suspended material such as clay or silt particles, dead organisms or their parts, or small living plants and animals.

WATER GAP - A narrow valley or gorge in a ridge of mountains or hills, eroded by a stream.

WATERLOGGED - The condition of the soil in which all the pore spaces are filled with water.

WATER SHED - The total area of land above a given point on a water way that contributes run-off water to the flow at that point.

WATER SPREADING - The application by means of stream diversion or otherwise of water over the land in order to increase the soil moisture supply for the growth of plants or to store it underground for subsequent withdrawal by pumping.

WATER TABLE - The upper surface of the free ground water in a zone of saturation except where it is separated by an underlying body of ground water by unsaturated material.

WEATHER - The state of the atmosphere at any given time with regard to precipitation, temperature, humidity,cloudiness, wind movement, and barometric pressure.

CONCEPTS AND RELATED ACTIVITIES TO THE WATER CYCLE

A. Certain understandings of characteristics of water resources and their distribution and status are essential

1. Water is a self replenishing and self depleting resource, it is intermittently replenished by precipitation and is steadily depleted by evaporation, transpiration, percolation and surface and underground run-off which may eventually find its way to the sea.	1. Make a closed terrarium.
2. Water tends to cling to earth particles and to spread throughout the earth materials by cappillary action.	2. Fill a clear container with soil--pour in water and observe. Find a sample of dry soil (A garden, sand pile), pour water on top and observe.
3. Water is unevenly distributed geographically and the quantity of water in any locality varied from time to time.	3. Choose any area around the school, make observations before and after a rainstorm. Rain falls evenly over a given area. Does it stay where it has fallen.
4. Water is a very active and mobile resource. It is hard to capture and keep where it is wanted, or to keep out of places where it is not wanted.	4. Observe the movement of rocks and soil placed on a sidewalk, driveway, or roadway before and after a rainfall.
5. Water readily dissolves and carries away a wide range of substances.	5. Where did the salt water in the ocean come from? Take a can and punch holes in the bottom. Fill the can with a mixture of common table salt and sand or soil. Pour an equal amount of tap water in the can. Have children taste the water after it has passed through the can.
6. All phases of the "water cycle" are closely related.	6. Make a closed terrarium. Make a weather project with temperature, humidity and precipitation measurements of the air and temperature measurements of the soil. This will involve observing, recording and making generalizations over a period of time.

B. Understanding uses of water and its uses to man.

1. Water is indispensable for plant and animal life and varies with climatic conditions.	1. Make 3 terraria--dry land, grass and forest. Compare the dependence on water of the life in each. Survey plant and animal life at varying distances from a pond noting their dependence on the water. Were they equally dependent?
2. Demands for water are increasing at a greater rate than the rate of population growth.	2. Students will make a survey of "old timers", parents, and peers to compare the demand on water during the youth of each group. Survey questions should include what the water was used for, the amount used, etc. Graph and share results.
3. In any given location, the ease of water's availability tends to influence the use made of it.	3. Have students use one water source in the school for all their needs for an entire day. Encourage them to continue this at home. Do they think twice about using water?
4. Activities on upstream and adjoing lands frequently affect the usefulness of any given body of water.	4. Field trip to a business or industry on or near a water supply. Observe and compare this water supply with one removed from any such activity. (Check your local dump and its proximity to a water supply.)

C. Various problems and techniques of management of water resources must be kept in mind.

1. Control of pollution is an essential aspect of water management.	1. Field trip to a sewage outlet;is this water recyclable, meaning active in the water cycle. Have two sample plots of grass, over a week's time water each plot, one with fresh water, the other with water mixed with detergent. Analyse the results after a week or so.
2. Certain land management practices help to reduce the flood waters and silt that small streams empty into rivers and lakes.	2. Observation of ditches around school, farms, etc.

3. Transporting and storing water to meet increasing needs require experience and management techniques.	3. Make a scrapbook of newspaper and magazine articles and pictures of dams or any new water management plan (i.e., the California aquaduct, the TVA, etc.) Are there any such plans involving your area? If so what might the results be?

D. Water resource conservation demands specific policy and administration of this policy.

1. Because water resources recognize no state, county, township or municipal boundaries in their occurence and all units of government be given maximum opportunity for cooperating to solve mutual management problems.	1. For a summary activity discuss who owns the water. In this discussion the students should be knowledgable in the previous concepts from the activities completed. (Why not do this at your nearest local water supply?)
2. Good public understanding of water resource problems, possible solutions, and management are extremely important.	2. Students should feel involved and a part of the water cycle. Guide students in community awareness through posters, contributions to local newspapers, suggestions to local government planning sessions, meetings, etc., program for parents, teachers and all members of the community when the student becomes the educator This aspect is vital.

Following is a list of supplementary activities related to our environmental web:

WATER

1. What is the source of your local drinking water supply?

2. Devise a way of measuring the evaporation rate of water in different locations and under different conditions and at different times of the day and year.

3. How do local industries or utilities use water? What happens to it? What condition is it in after use?

4. Determine how water run off and absorbtion have been altered by land that has been covered with cement or asphalt?

5. From a sample, estimate the number of leaves on a tree. Estimate the amount of water given off by the tree in one day through transpiration.

6. Take a field trip to the local sewage disposal plant. Find out prior to the trip if the plant is primary or secondary treatment.

SOIL

1. Make s survey or check the local community to discover erosion hazards.

2. Rub pieces of limestone, sandstone, etc., together to illustrate how long it takes nature to form soil.

3. Compare the depth of topsoil in different locations.

4. Compare the amounts of organic matter in various soil samples.

5. Attempt to determine the age of rock in your area.

PLANTLIFE

1. Observe the growth rings in a tree stump to determine how aspects of the natural environment have affected the tree through the years.

2. Mark off quadrants of one square meter in different plant communities to compare: the types of plants, amount of bare ground to that covered with vegetation, amount of basal area of each plant compared to the area covered by foliage, light intensity, temperature of the air and soil,moisture present, soil compactness, water absorbtion rate, and air movement.

3. How has man damaged natural vegetation in your area?

ANIMAL LIFE

1. Make a population census of small animals in an area.

2. Estimate the number of birds in a flock.

3. Make a profile chart of various local animals that can be observed and indicate at which level of the community they feed, i.e. underground, on the ground, at the bottom of trees, near the top, overhead.

4. Make a survey of insects and the plants on which their evidences are found. Estimate the total number of certain kinds of insects in an area.

5. How has man's use of the land affected or changed the wildlife in your community or region? What animals have moved away and which ones have adapted to an altered environment?

POLLUTION

1. Bring in a dirty furnace filter to illustrate the dust and foreign particles found in household air.

2. Count a specific number of automobiles and note the number with excessive exhaust fumes. A graph can be made showing the relationship.

3. Estimate the number of automobiles your community has and estimate the amount of pollutants added to the air each day by them. Is there any way to cut down on these pollutants, i.e., public transportation, car pools, bicylces.

Because ecology involves the interaction of all living and non-living processes, this unit on the water cycle can easily be adapted to the other major processes in our environmental web: sun energy, soil, plant and animal.

Be flexible and imaginative!

THE FOLLOWING IS A LIST OF THE NAMES AND ADDRESSES OF SOME FILMSTRIP PRODUCERS WHO PUT OUT SELECTED MATERIALS IN RELATION TO WATER, CONSERVATION, AND ECOLOGY. A SERIES OF CODE LETTERS IS GIVEN FOR EACH COMPANY.

NAME AND ADDRESS	CODE LETTERS
Colonial Films 71 Walton Street, N. W. Atlanta, Georgia 30303	CF
DeKalb Agricultural Association 310 North Fifth Street DeKalb, Illinois 60115	DK
Encyclopedia Britannica Films, Inc. 1150 Wilmette Avenue Wilmette, Illinois 60091	EB
Eye Gate House, Inc. 146-01 Archer Avenue Jamaica, New York 11435	E-G
Jam Handy Organization School Service Department 2821 East Grand Boulevard Detroit, Michigan 48211	JH
Long Filmslide Service 7505 Fairmount Avenue El Cerrito, California 94530	LFS
McGraw-Hill Book Company Text Film Division 330 West 42nd Street New York, New York 10036	M-H
Nasco Industries, Inc. Fort Atkinson, Wisconsin 53538	NASCO
Pat Dowling Pictures Distributed by: Baily Films, Inc. 7509 DeLongpre Hollywood, California 90028	PD

Society for Visual Education, Inc. SVE
1345 Diversey Parkway
Chicago, Illinois 60614

USDI, Bureau of Reclamation USBR
Building 63, Denver Federal Center
Denver, Colorado 80225

Water Resources Association
Distributed by:
Training Films, Inc.
150 West 54th Street
New York, New York 10019 WRA

THIS LIST OF FILMSTRIPS IS MEANT ONLY AS A SELECTED ADDITION TO ANY OTHER A-V MATERIALS THE CLASSROOM TEACHER MAY HAVE RECORSE TO.

TITLE	COMPANY CODE
BALANCE OF NATURE..................................	E-G
BALANCING THE SUPPLY AND DEMAND	EB
CHANGES IN ECOSYSTEMS	M-H
CONSERVATION OF HUMAN RESOURCES	E-G
CONSERVING WATER AND SOIL	PD
CYCLE OF NATURE	E-G
DEMAND, THE	EB
ENOUGH WATER FOR EVERYONE	EB
GREAT FLOOD, THE	NASCO
HUMAN ECOLOGY	M-H
INTRODUCTION TO ECOLOGY	M-H

The following are all listed under SVE films: Lets Explore a Field, Let's Explore a Lawn, Let's Explore a Pond, Let's Explore a Stream, Lets Explore a Woodland, Life in a Bog, Life in Relation to Environment.

MANAGEMENT OF WATER, THE	M-H
MIRACLE OF WATER	USBR
MUDDY RAINDROPS, THE	SVE
POND AS A COMMUNITY, THE	M-H
WATER AND ITS CONSERVATION	E-G
WATER BIRDS	EB
WATER CONSERVATION TODAY	SVE
WHAT IS CONSERVATION?	EB
WIND AND WAVES	SVE
WORK OF RUNNING WATER	SVE

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STOP, Society to Overcome Pollution, Montreal, Canada.

Teacher's Packet for Conservation Information and Education, Department of Conservation, Albany, New York 12226.

Techniques for Teaching Conservation Education, Brown, Robert, Burgess Publishing Company, 1967.

Understanding Ecology, Billington, E. Warne and Company, N.Y. 1968.

LEARNING SCIENCE IN THE OUT OF DOORS K - 4

By: Elizabeth Dunford, Louise Huot, Donna McQuain,
Roger McQuain, Phyllis Smith

In this project for Outdoor Education we will cover the grade range K-4 by activities, games, observations and experiments. The children will learn through their own discovery following a discovery guide which is an aid to individualizing inquiry. It avoids confusion. The talking by the teacher is reduced to a minimum allowing for individual attention to the child.

OBJECTIVES OF DISCOVERY GUIDES:

1. To foster the natural curiosity which children have about the world around them.

2. To guide children to learn about their environment out-of-doors by getting them involved in the process of finding out for themselves.

3. To give children a chance to appreciate science as a method of discovery through solving problems.

4. To emphasize the ecological approach by including studies in the physical and biological aspects of the environment.

5. To help foster the kinds of attitudes and appreciations which lead to understanding the scientific method and its applications.

6. To stimulate interests and to develop skills which enable children to investigate for themselves.

7. To develop an understanding of the out-of-doors which may lead to interesting hobbies of various kinds.

8. To create an awareness that our resources are not restricted to soil, forests, fish and wildlife; but that they also include peace, quiet, clean air, clean water, space and beauty.

9. To lead children to the enjoyment of the esthetic beauties in the outdoors and to explain the privileges and duties each one has to make it possible for others to obtain the same enjoyment.

10. To appreciate conservation as it develops from an understanding of the ecological interrelationships in our environment and to recognize that man is part of this "web of life."

LIVING THINGS - OBJECTIVES

KINDERGARTEN

The student will be able to:

1. identify that all things are either living or non-living.
2. identify living things as plant or animal.
3. identify all living things grow.
4. state that all living things are not the same size.
5. identify that there are many kinds of plants and animals.

FIRST GRADE

The student will be able to:

1. state that there are many kinds of plants.
2. state that plants grow in a variety of places.
3. state that plants and animals need food, air, water, and favorable temperature to live.
4. state that green plants need light to grow.
5. state that most plants can not move about as animals do.
6. state that there are many kinds of animals.
7. state that animals live in many kinds of places.
8. state that most animals can move from place to place.
9. state that animals move in different ways.

SECOND GRADE

The student will be able to:

1. identify the parts of a plant.
2. identify that living things change as they grow.
3. state that some animals move from place to place with seasons in order to find food.
4. state that seed dispersal is essential for plant reproduction.
5. identify living things in soil.

THIRD GRADE

The student will be able to:

1. state that many plants and animals are adapted to living in certain kinds of places.
2. state that many animals have special adaptations which protect them from their enemies.
3. state that man depends on other living things for his food, clothing, and shelter.
4. state that man should exercise good conservation practices so as not to disrupt the interdependence of living things.

FOURTH GRADE

The student will be able to:

1. identify the parts of a flower as stamen, pistil (ovary, seeds), petal, sepals.
2. state that some plants have seeds.
3. state that seeds are produced by flowers.
4. state that seeds are distributed by explosion, wind, water, and animal.
5. state that fruit develops from the flower
6. state that green plants make their own food.
7. state that new plants can be grown from seeds, leaves, and stems of other plants.
8. state that some animals feed and protect their young.
9. identify the five groups of vertebrates.
   a. fish b. amphibian c. reptile d. bird e. mammal

LIVING THINGS - ACTIVITIES

K-2

1. Take a walk around the building during the spring to collect tree seeds. Observe differences in sizes and shapes.

2. Collect branches bearing unopened fruit of witchhazel in the fall. Keep these in a warm classroom. The witchhazel will pop its seeds-showing method of seed dispersal.

3. Sketch and describe specimens observed and then classify these upon return to the classroom using visual characteristics. One student from each group might be permitted to collect one specimen.

4. Find living and non-living things.

5. Listen for sounds which living things make.

6. Investigate a dead tree to find out how it feels, smells and looks. Look for scars, breaks, holes, and for plants and animals on it and in it. A fallen rotting tree is examined in the same way. (Do not break rotting log apart. Replace whatever is moved.) Students may justify its value to the environment.

7. Look for animal homes at different levels of the forest or field (ground level, eye level, and overhead) as well as by the holes, spittle bug foam, webs, rolled leaves, cocoons caves, muskrat mounds, and beaver lodges.

8. Study the difference in bark textures by feeling with fingers. Make rubbing of bark in order to compare designs.

9. Observe and feel differences in other parts of plants, leaves, trunks, twigs, root, flowers, and branches.

10. Look for animal coverings to study. Perhaps rabbit, snake, frog, salamander, bird, insect or earthworm.

11. At the edge of a pond use a strainer to scoop up some bottom mud which is then placed on newspaper. Living things are then transferred to basins of water where they can be more clearly observed. Overturn a few rocks to find life under them. Try to get life from a stream where there is running water to compare life from the two places.

12. For sight, touch and smell, introduce two different leaves, such as sassafras and mullein. Sassafras has 4 different shapes, is smooth, and is fragrant when crushed. Mullein has a simple outline, is not especially fragrant, and is very fuzzy. Listen to the sounds made by walking on leaves, the calls of birds, running stream, splashes of animals, sounds of animals.

13. Give each child a copy of some leaf shapes and then look for the matching shape outdoors. When the child finds a match, he may fill in the outline with crayon.

LIVING THINGS-ACTIVITIES CONTINUED K-2

14. Look for evidence of animals using plants for food.

15. Notice which parts of all plants are green.

16. Find what happens to the roots of a fallen tree, to the hole left by the fallen tree.

17. Find evidence of change taking place on some of the rocks.

18. Find evidence of roots of plants keeping water from washing soil away.

19. Find what lives in water, the woods, the soil.

20. Making two teams, have students go out and find the lack of grass in certain places.

21. Take a hoop or coat hanger and throw randomly to observe within loop area the different kinds of seeds and how they spread.

22. Send search parties of two or three children to find as many different types of mushroom, lichens, fungus and algae as they can.

23. Have children find as many different types of galls as they can.

24. Have students count as many birds as they can in a certain time.

25. Taking containers with them, have students collect as many kinds of insects as they can and observe their behavior.

26. After observing plants have class tell in which direction they grow.

27. As an art project have each student select a different shape tree and then draw it from memory.

28. Have the class gather all materials they feel are polluting the area you specify.

29. Compare several flowers. Look for the same color, different colors. Look for the parts that are the same color and the parts that are different color.

LIVING THINGS - ACTIVITIES

K-4

1. Plant a flower or vegetable garden on the school grounds.

2. Collect mushroom and ferns to show spores.

3. Find fungi of verious types and notice where they are growing. Compare these places with places green plants grow.

4. Obtain green pond scum and observe drops under a microscope or bioscope.

5. Make fern leaf prints in plaster of paris.

6. Look for immature insects in various land locations - near the water, in the woods, in the field, and along the fence rows and roadside. Look for caterpillars hanging from trees, rolled up in leaves, inside galls on various parts of plants.

7. Divide children into small groups to explore carefully a portion of the area under study. They can look for changes in plants such as rolled leaf edges, galls, holes in leaves or the tree itself; changes in the physical environment such as decreased sunlight in an area, holes in the ground or flooding of the area.

8. Find different stages of growth in insects, frogs, and toads. Obtain samples from bottom mud and water in a pond.

9. Let children work in groups while exploring an area for living things.

10. Observe the differences in mature and immature trees--bark texture, size and shape of leaves, color of twigs and bark, shape and and height of the tree. Notice the leaf canopy of the tallest trees in contrast to the lower branches. Bark rubbings of older and younger barks are apt to be smoother than older ones; contrasting rubbings which show trees grow in width as well as length. Growth in width causes ridges, cracking and peeling.

11. Use different methods of telling the age of a tree. Count the whorls of branches on pine trees, the annual rings of a tree cross section and the growth rings or bird scale scars on branches of deciduous trees. Current growth being the distance between the terminal bud and the nearest set of "growth rings." Measure the distance between these growth rings and the next lower set for previous year's growth.

12. Let children select two twigs which are two years or older. They measure and record the amount of growth for the present year and the last year. Determination can be made as to which year showed the most growth and discuss the reasons for different growth rates from year to year.

13. Take precounted toothpicks of assorted colors and scatter them in the grass. Have children try to pick up as many as possible in a given time limit. Observations can be made as to what color toothpicks are most difficult to locate. Try this same activity in a drier area, perhaps a meadow or field and carry on the same observations. Discuss camouflage and protection again in regard to findings. Find insects which are the same color as the place they are found.

14. Look for evidences of animals in the woods. They might be tracks, eaten nuts, spider webs, nests, the sounds of animals, their droppings, etc.

15. Examine soil and notice it is made up of broken down parent rock, decayed plant and animal material, live organisms, water, and air.

16. Working in groups the children can work in different areas (evergreen woods, field, deciduous woods, school yard) to examine soil samples. Later they can use soil samples to create dioramas of the area from which they were taken.

17. Find the diameter of a tree by use of a tape which has been marked off in 3 and 1/7th inches and each section numbered by ones. Wrap the tape around the tree trunk 4½ feet from the ground. Where the tape meets, read the number. This represents the approximate diameter of the tree.

18. Locate plants which should be avoided.

19. Look for nests, and notice the number of nests in one tree.

20. Watch birds to find what kinds of plants seem to attract them.

21. Observe animals on, in, around and under a stump and notice what they are doing.

22. Observe the shape and color in animals and relate this to the survival of the animals.

23. Examine some plants in order to find the beginning of next year's plant and notice the location of these parts.

24. Try to locate cocoons, spider egg cases, praying mantis cases, earthworm egg cases and watch their development, etc.

25. Compare the temperature of several animal homes for the warmest and coolest.

26. Compare the living conditions of plants and animals on top of a rock and those under a rock.

27. Examine plants in order to find out how they protect the soil.

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AIR, WATER AND WEATHER - OBJECTIVES

KINDERGARTEN

The student will be able to:

1. state that air is all around us.
2. state that we can feel air but we cannot see it.
3. state that we can see what air does
4. state that air can warm us or cool us.

FIRST GRADE

The student will be able to:

1. identify that winds move at different speeds and from different directions.
2. identify things that wind can do which are beneficial, harmful, or both.
3. identify the forms of precipitation
   a. rain b. snow c. sleet d. hail
4. identify that weather affects our work and play.
5. identify that clouds have different shapes.

SECOND GRADE

The students will be able to:

1. identify the different places temperature is measured.
2. state that water evaporates from puddles, lakes, and oceans to go into the air.
3. state that there are different types of clouds and that they change color, patterns and speed.
4. use a rain guage.
5. state that rain effects the plant and animal life.
6. state that wind has different strengths and may blow from any direction.
7. state that temperature differs in contrasting areas.

THIRD GRADE

The students will be able to:

1. state that wind effects animal life.
2. state that a volume of snow melted will produce a lesser volume of water.
3. state that there are different forms of clouds.
4. identify difference in snowflakes and compare size and shape.
5. state that the earth is heated unevenly by the sun.

FOURTH GRADE

The student will be able to:

1. state that some precipitation soaks into the ground while some runs off into streams, lakes and oceans.
2. state that excessive precipitation causes great damage by erosion and flood.

3. state the condition of a swamp.
4. state that the water table is higher in the spring than in the fall.
5. determine wind conditions and velocity.

AIR, WATER AND WEATHER - ACTIVITIES

K-2

1. Have students record rainfall by making a rain guage and keeping a record over a period of several weeks.

2. Have students keep records for several days of the kinds of clouds that are visible. Discuss changes of color, patterns and speed.

3. Have students observe the effect of rainfall on the plant and animal life. Discuss the problems created by rain and also the helpful effects.

4. Children can find many examples of temperature differences outdoors. The following areas of contrast may be used.
   a) sun-shade
   b) wind-calm air
   c) deep water-shallow water
   d) snow surface-under pile of snow at ground level
   e) snow-ice
   f) surface soil-subsoil
   g) edge of water-middle of meadow

5. In which places around the building does the wind blow strongest can be a matter of research.

6. Find the coolest spot on a warm day; the warmest spot on a cold day.

7. Feel the surfaces of different types of objects and notice whether color of the object makes a difference. When doing this record the results for warm days and cool days. Compare.

8. Draw a circle around the very edge of a puddle with a piece of chalk or mud. Watch to discover how long it takes to disappear. Try this on sunny days and cloudy days to compare time element. Try it on relatively calm days and windy days and compare. Discuss what happens to the water.

9. Make wind strips with strips of plastic for observation of wind velocity--both for strength and direction at various parts of the school environment.

3-4

1. Have students study and record wind conditions for several weeks--use direction of the wind and the accompanying weather conditions and temperatures. Make a simple wind van and anemometer.

3-4 (continued)

2. Have students investigate snow volume in comparison to water volume of the same melted snow by using some fruit juice cans which have been filled with snow, placed in warm place to allow snow to melt and resultant water volume measured. Let children calculate how many inches of snow would produce one-inch depth of water, or how many inches of snow will be produced by the snow in the juice cans. Try different textured snow, snow packed down or placed lightly in the can. Note results.

3. Make daily observations of clouds. If a camera with a filter is available, cloud photographs can be taken and developed into an excellent exhibit.

4. Examine snow flakes which fall on dark clothing with hand lenses. Note their shapes, number of points.

5. Arrange a trip to a reservoir, or to the source of the school water supply. If appropriate, have the school custodian interviewed for what happens to the water to make it ready for use in the school.

6. Find places in the vicinity of the school where there is evidence that the water table is near the surface. Swampy or marsh locations can usually be found at a distance not too far away. Children should be led to observe the difference in the vegetation as compared to adjacent drier areas. In early spring it will often be possible to find the water table by digging a small hole with a shovel.

7. Arrange to take a trip to an airport or local weather bureau to observe the wind sock and the wind speed indicator (anemometer). Discussion can be held as to why the people at the airport are interested in the wind speed and direction, the weather bureau is interested in both, too.

8. Have the children find a place in the direct sunlight where a blacktop surface meets the lawn. Have the children place one hand on the paved surface and the other hand on the grass. Discuss which area is hottest, whether the sun heats all parts of the earth equally or not.

9. Go to a nearby weedy field on a windy day. Have the children lie down, face up, and see how hard the wind blows against their faces. Have them kneel with their faces even with the tops of the weeds. Let them stand. Discuss where the wind is the weakest, the strongest, where the insects might go on a windy day.

EARTH AND ITS COMPOSITION - OBJECTIVES

KINDERGARTEN

The student will be able to:

1. identify rocks/stones as hard non-living things.
2. separate rocks/stones into groups according to:
    a. size b. color c. shape d. texture
3. identify that there are different kinds of rocks/stones.
4. state that rocks/stones are used to make things.
    a. as building materials
    b. in many ways around the house and in schools
        1) Stone which is used to building things is strong and hard.

FIRST GRADE

The student will be able to:

1. identify that the land on which we live is made of rock and soil.
2. distinguish the difference between soil and sand.
3. state that there are different kinds of soil.

SECOND GRADE

The student will be able to:

1. identify the ways in which rocks are constantly being worn or broken down.
    a. wind b. water c. temperature change d. plants e. man
2. state that the soil contains bits of broken rock and decaying plant and animal matter.
3. show that soils differ in their ability to hold water.
4. state that the top soil is a valuable resource and should be conserved.

THIRD GRADE

The student will be able to:

1. state that the surface of the earth is constantly changing.
2. identify the examples of earth's changes.
    a. building up and wearing down of mountains and hills.
    b. delta, gully, valley formation
    c. changes in coastlines
    d. landslides
3. identify the factors responsible for these changes.
    a. wind and water erosions
    b. man and other animals
    c. glaciers
    d. gravity
    e. earthquakes and volcanoes

FOURTH GRADE

The student will be able to:

1. state that fossils are evidence of life in the past and may be found in sedimentary rock.
2. recognize fossils and fossil imprints
3. state that there are different kinds of fossils
4. identify two examples of sedimentary rocks
   a. limestone b. shale c. coal d. conglomerate
5. identify two examples of metamorphic rocks
   a. marble b. quartzite

EARTH AND ITS COMPOSITION - ACTIVITIES

K-2

1. Collect some rocks from around the neighborhood. Compare the rocks collected with the man-made materials (rock-like) used in construction.

2. Have the children use lemon-juice or vinegar for testing reaction of rocks. Try to include limestone so that there will be a bubbling reaction.

3. Examine natural rocks found on school site. Discuss and group rocks according to size, color, shape, texture.

4. Take a trip to visit a stonecutter. Notice what kind of stone he uses and the tools used to cut the rock.

5. Go outside after a rainstorm and find areas where water is standing on the earth. Discuss the differences in the kind of earth which held the water on the surface and that which allowed it to sink into it.

6. Visit areas where the soil has been moved by rainwater. Observe the evidence of miniature gullies and ditches, transported sand and other examples of erosion.

3-4

1. Locate limestone and examine it closely with the aid of a magnifying glass. Sometimes tiny shells can be seen. Test the rock with vinegar or lemon juice and notice the reaction. Try the same test on other rocks and compare the reactions.

2. If in an area where marble is found, try testing with vinegar and compare its reaction with that of limestone.

3. Take a trip to a museum where displays illustrating physical features and changes of the earth are exhibited.

4. Arrange a trip to a nearby area which shows evidence of glacial features and deposits. In large cities such evidence can often be found in parks.

5. Visit sites which are under construction and see rock exposures. Sometimes they provide a source for rock and mineral specimens.
6. Visit a place where building stone is quarried to find out kind of rock, uses of the rock, methods of quarrying.
7. Gravel beds or banks may provide another place to collect specimens.
8. A fossil-collecting trip may be possible in some areas.

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ADOPT A TREE

By: Philip B. Noyce

Look at the trees around your neighborhood, block, or schoolyard. Some trees are big and some are small but each helps purify our air and makes our neighborhood a more pleasant place to live.

Some trees have been planted by people and some grew all by themselves.

Some trees are healthy and some are unhealthy.

Some trees have scars where people have injured them, perhaps by accident, perhaps on purpose.

Some trees may be the same size as others and some have the same kind of bark or leaves as others.

Look at the differences and similarities of your trees. Each one is in some ways special and different from all of the others.

Choose one tree which seems in some way special to you.

Keep a notebook on your tree.

Was it planted by people or did it grow by itself?

Who do you think planted your tree? Ask people who may know.

Why do you think the tree was planted and who do you suppose paid for the work?

See if you can find out how long your tree has been growing here. Ask people who may know.

Does your tree have needles or leaves on it? What is the difference?

Will your tree have leaves in the spring?

Can you find out what shape the leaves will be? Maybe you can find an old leave from last year on the ground or on the tree.

What kind of bark does your tree have? How is it different from the bark of other trees nearby?

Can you see any scars on your tree where people have injured it? What do you think caused the injury?

Do you know what kind of tree you have chosen? See if you can find out.

What do the buds of your tree look like? Compare them with the buds of other students' trees. Compare leaves as well if they are available.

What pattern do the branches of your tree make? Is it different from other nearby trees?

What is the bark of your tree like? Is it rough or smooth, scaley or tight, gray or brown or black?

Does your tree have any seeds on it? See if you can find out what the seeds will be like. How are the seeds of your tree transported to new locations?

What shape does your tree have where it joins the ground? (Where the trunk joins the roots)

Measure your tree

What is the circumference of your tree? Trees are normally measured at the height of 4½ feet from the ground. Can you find the diameter from this? (measure very carefully and you may be able to measure again at the end of the summer to see how much your tree has grown. Be sure to measure at the same place.)

Can you find the height of your tree?
Get your teacher to help you.
How high from the ground is the first branch?

Each tree is the home of many millions of other plants and animals. Most of them are so small we could only see them with a very powerful microscope. Many live underground where we can not easily find them. On most tree trunks you can find lichens growing.

What are lichens?
Can you find any insects under the loose bark on your tree?
Can you find any signs of life in the dirt at the base of your tree?

Watch your tree when Spring comes. Keep a record in your notebook.
On what date do buds begin to turn green?
When do the leaves begin to unfold?
Are there any flowers on your tree?
Do leaves and flowers come out at the same time?
Is there anything on your tree for birds to eat?

Draw your tree in Winter and in Spring?

Draw the leaves of your tree?

Make rubbings or spatter prints of the leaves of your tree.

A CUBE OF SOIL

Courtesy: Dr. Helen Russell

Materials

Trowel Ruler Jar Screens Newspaper

Equipement

Without disturbing the plants, lift a cube of earth (6"x6"x6").

Place it on a piece of paper. Examine it. (As you work, put any animals in a jar).

How do the plant roots affect it? How do they grow? How far down do they go?

Is it the same color at the top and bottom? If not, what is the difference?

What other differences can you notice?

Remove the plants. How many individual plants are growing on your cube? How many kinds? Separate them into piles by kinds. Tally them. If you don't know the names, draw pictures to indicate the plants you are talking about. Or describe them.

Shake the soil off the roots. Use the screens to learn about the size of soil particles and the relative quantity of each size.

Start work with the large screen. When you have finished, you will have five piles. Estimate proportions of each size soil particle.

Was there any visible organic material? Mineral materials? What about animals?

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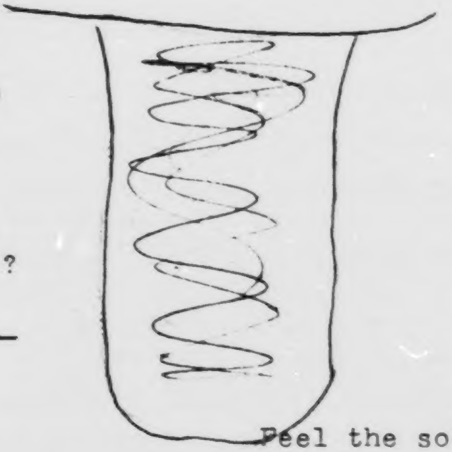
SOIL

By: Marian Carpenter

dig a small hole and put the soil you remove on a pice of newspaper . . .

How
deep
is
the
hole?

____



What color is the
soil at the sides
and top of the
hole?

____ top ____ side

Feel the soil on your newspaper . .

is it damp or dry? ____________

is it hard of soft? ____________

what kind of soil do plants like best? ______________

what kind do worms like? ______________

does the soil stick together if you make a ball out of it? ____

How many animals can you find in the soil?

Name them or draw their pictures . ..

Why do plants and animals
need the soil?

Why does the soil need

the plants and animals?

EARTHWORMS

Courtesy: Dr. Helen Russell

Earthworm mounds can be found almost any place in the world where there is moist earth. These mounds are piles or droppings -- undigested food material which has passed through the earthworms body after being around in its gizzard and treated with the digestive chemicals.

If you examine one of these piles of pulverized earth you may discover that it is made of small pellets. (Rain, lawn mowers, walking people may compact early deposits).

Rub some of these pellets between your fingers. Notice how fine the earth particles are. How does this help the soil?

Notice the hole beneath the pellets. How does this help the soil?

If you look quickly when you pick up the mound of earth you may see the earthworm before it disappears.

When you know how to identify the earthworm mounds, you can do a census in different area. This could be done in different ways. The class can be divided into pairs and each pair assigned a section of lawn to count mounds. If these figures are added, you will have a total for a given area for a given date and year.

Or the class can be divided into thirds or fourths, and each group could explore a plot or given dimensions in a different habitat (e.g. woods, lawn, bare ground, field, orchard). This raises questions about the places earthworms prefer.

In the orchard each group can find an earthworm mound. By cutting down around the side with a trowel the whole burrow may be dug up with the earthworm in it.

Examine the burrow. Is it straight? Curved? Could you draw it? How wide is it? Is there any place the earthworm can turn around?

Put the earthworm in a pan. Put earth at the opposite end of the pan. Watch the earthworm move. How does the earthworm use it muscles: How can you locate the head end?

Watch the earthworm for a while. What words would you use to describe its size? Do you need different words at different times? Why?

The pink color is from hemoglobin in its blood. The black is the food in its digestive tract. Where does the digestive tract start and end? Is there an equal amount of food in all parts of the digestive tract? Is the tract the same thickness from one end to the other?

Make a list of other questions you can ask about earthworms. Can you discover the answers by observing your worms?

You may want to set up an earthworm observation home by using an olive jar. Fill it 3/4 full with moist earth. Put an earthworm on top of the earth. Wrap a pice of black paper around the jar and fasten it with a rubber band.

When you want to see earthworm activity take the black cover off. Why is the cover important?

What questions can you find answers to in your observation home?

Put a thin layer of fine light colored sand on top of the earth. Does this help with observations?

Try sawdust on the earth in another observation home. Are the results the same?

Earthworms eat decaying leaves and other dead plant materials.

Can you devise some experiments and discover if they have any food preferences?

Suggested reading for teachers:

EARTHWORMS, by Dorothy Childs Hogner, Pub. Thomas Crowell

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AND NOW IT'S FALL

Courtesy of Lakeside Nature Center

At this time of year there are many unique things to experience with our eyes, ears, noses, fingers, faces and feet.

Have you noted what is replacing summer's morning dew? Have you looked at it through a magnifying glass?

How do the lowering temperatures make you feel? Or the contrast between morning and afternoon temperatures?

Does the rain smell different to you now - before, during, and after the rainfall: Does it feel differently? What changes do you notice after the rain? What changes do your bare feet tell you about?

Have you noticed the trees,around your school. For each tree, do the leaves turn the same color? Do all the trees turn brilliant colors? After the leaves fall can you feel and smell what is happening to them?

When the brances are bare have you compared the shapes of different varieties of trees? Do their shapes suggest different feelings to you?

Have you touched a ripened milkweed pod with your nose? And other seeds - how do they feel?

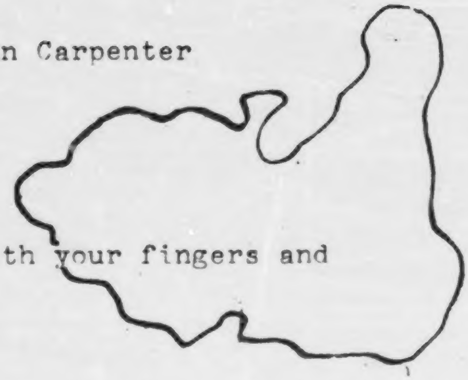
Have you moved your fingers through the coat of a horse, dog, or cat? What do your fingers tell you is happening? Do you see a change in color?

When you close your eyes in the school yard, a city park, or forest, what sounds do you hear that you don't hear at other times of the year?

Have you provided opportunities to experience the above with your students? Hopefully these outside activities will supplement units or projects you are involved with this Fall. Or maybe they will suggest a unit or concept to teach, such as preparation for the winter's dormancy or nature's recycling.

ROCKS

By: Marian Carpenter



Pick up a rock and look carefully at it.

What shape and olor is it?

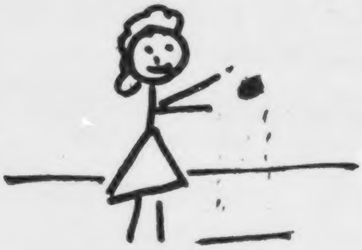
Now close your eyes and feel the rock with your fingers and with your cheek.

How big is your rock compared to you?

Is it heavy? Think of something else that is as heavy as your rock.

How hard is your rock?

What can you find that you can scratch it with:



Pick up two rocks -

one big and one small. If you drop both of them at the same time - which will hit the ground first? Try it . . .

What ar rocks good for?

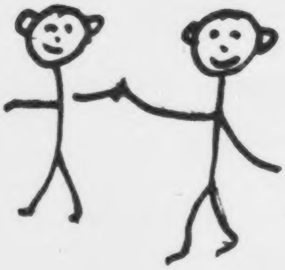
What can you do with them:

Find a rock that you

really think is nice and

bring it home to a friend

who couldn't come today . . .



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By: Marian Carpenter

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Living Things, Jeanne Bendick; Franklin Watts
Look What I Found, Marshal Case: Chathan Press
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See Through the Forest, Millicent Selsam: Harper
Slow As A Snail, Quick As A Bird, Miriam Young; Lathrop
Small Worlds, Helen Russell: Little Brown
Soil, Helen Russell: Little Brown

SEASONAL

Fall Is Here!, Dorothy Sterling; Natural History Press
Where Does Everyone Go?, Aileen Fisher: Thomas Crowell
Soon After September, Glenn Blough; McGraw Hill
Spring Is Here!, Dorothy Sterling: Natural History Press

STONES

First Books of Stones, M. B. Cormack; Franklin Watts
*They Turned to Stone, Julian May; Scholastic Book Service
*All Upon A Stone, Jean George; Thomas Crowell
*The Wonder of Stones, Roma Gans; Thomas Crowell

PLANTS AND SEEDS

Birth of a Forest, Millicent Selsam; Harper and Row
Let's Go To The Woods, - Harriet Huntington; Doubleday
Thanks to Trees, Irma Webber: Scott
*The Plants We Eat, Millicent Selsam; Harper and Row
*Lions In The Grass, Phyllis Busch; World Publishing
*Plants With Seeds, Dorothy Wood: Follett
Learning About Flowering Plants, Phyllis Ladyman; Scott
Play With Seeds, Millicent Selsam: Morrow
*Bits That Grow Big, Irma Webber: Scott
*Milkweed, Millicent Selsam: Morrow
*Maple Tree, Millicent Selsam: Morrow

INSECTS, ANIMALS, BIRDS

The Praying Mantis, Lilo Hess: Scribners
*First Book of Bugs, Margaret Williamson: Franklin Watts
*The Bug That Laid the Golden Egg, Millicent Selsam: Harper & Row
*Terry and the Caterpillars, Millicent Selsam: Harper & Row
*Odd Pets, Dorothy Hogner: Scholastic
*Questions and Answers About Ants, Millicent Selsam; Scholastic

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*Birds Eat and Eat and Eat, Roma Gans; Thomas Crowell
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Collecting Cocoons, Hussy and C. Pessino; Thomas Crowell

*easy to read

We recommend that teachers subscribe to:

Ranger Rick's Nature Club and Magazine
1412 16th Street
Washington, D. C. 20036

HOW DOES YOUR GARDEN GROW?

By: Lakeside Nature Center

Watching a seed grow into a plant is an exciting happening for most children -- adults too.

A brightly lit window inside your classroom will adequately serve as a greenhouse area

Paper cups or milk cartons can serve as containers.....

Seed packets can be cheaply bought or may be obtained as donations from major seed companies if you write to them explaining how you plan to use the seeds.

Different planting media may be purchased at garden stores, but the quickest and easiest way is to go right outside your classroom and dig up some soil. You shouldn't need that much so don't make one big hole (a potential booby trap) and try to stay away from lawn areas. To prevent weed seeds from germinating in your soil, bake the soil in a hot oven for one whole day.

You can grow the plants totally inside if you want, transplanting them to larger containers as they mature. But if you have a small area (5' x 5') of ground outside, think of it as a potential garden area. Being small, it wouldn't require much preparation (i.e., turning over, raking, fertilizing, staking out rows, etc.) If you have an outside garden, vandalism will prove to be more of a problem than bugs, so try to make the garden in a fairly secure place.

How can a garden (inside or outside) be a teaching tool? The following are just some hints and ideas which hopefully will lead you to bigger and better things:

Science

Seeds
Soil
How does a plant make its own food
Fertilizers and pesticides
Interdependence
Water
Air

Environment
Agriculture
Food Chain

Nutrition
Leaves, roots, stems
Weather
Tools

Math

Weight and volume of soil/water
Dimensions of garden
Growth rate
How many plants?
% of seeds that germinate
Number of leaves per plant
Length of leaves

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History

Plants of Indians and Pioneers
Beginning of Agriculture
Cotton - slavery - Civil War
Victory Gardens - WW II

Social Studies

Plants and plant products: clothes, houses, industries, life styles
Map of garden

Language Arts

Plant descriptions
Write stories about plants
Poetry
Literature - i.e., Johnny Appleseed

Art

Drawing and painting
Shapes
Native Dyes from plants

Leaf prints
Collages

Music

Effects of different types of music on plant growth
Songs about plants
Instruments from plants - i.e., Indian instruments

A garden can be an inspiration for many things. There are many books available on this subject, but you possess the most important resource of all -- your imagination. Use it!

HELPERS

Learning About Flowering Plants by Phyllis Ladyman - Pub. Young - Scott Books, N. Y.

The Plants We Eat by Millicent Selsam - Pub. Harper & Row, N. Y.

Plants With Seeds by Dorothy Wood - Pub. Follett Pub. Co., Chicago, Ill.

GETTING TO KNOW A TREE

By: Marian Carpenter

Find a tree that looks interesting.

Is it bigger than you? How much bigger?

How wide is it? Can you put your arms around it?

What does your tree feel like? How does it smell?

Is it old or young? How do you know?

Are there any buds or leaves or flowers on the branches of your tree? What are they like: Draw a picture of them:

Thank of ways in which we can take care of trees.

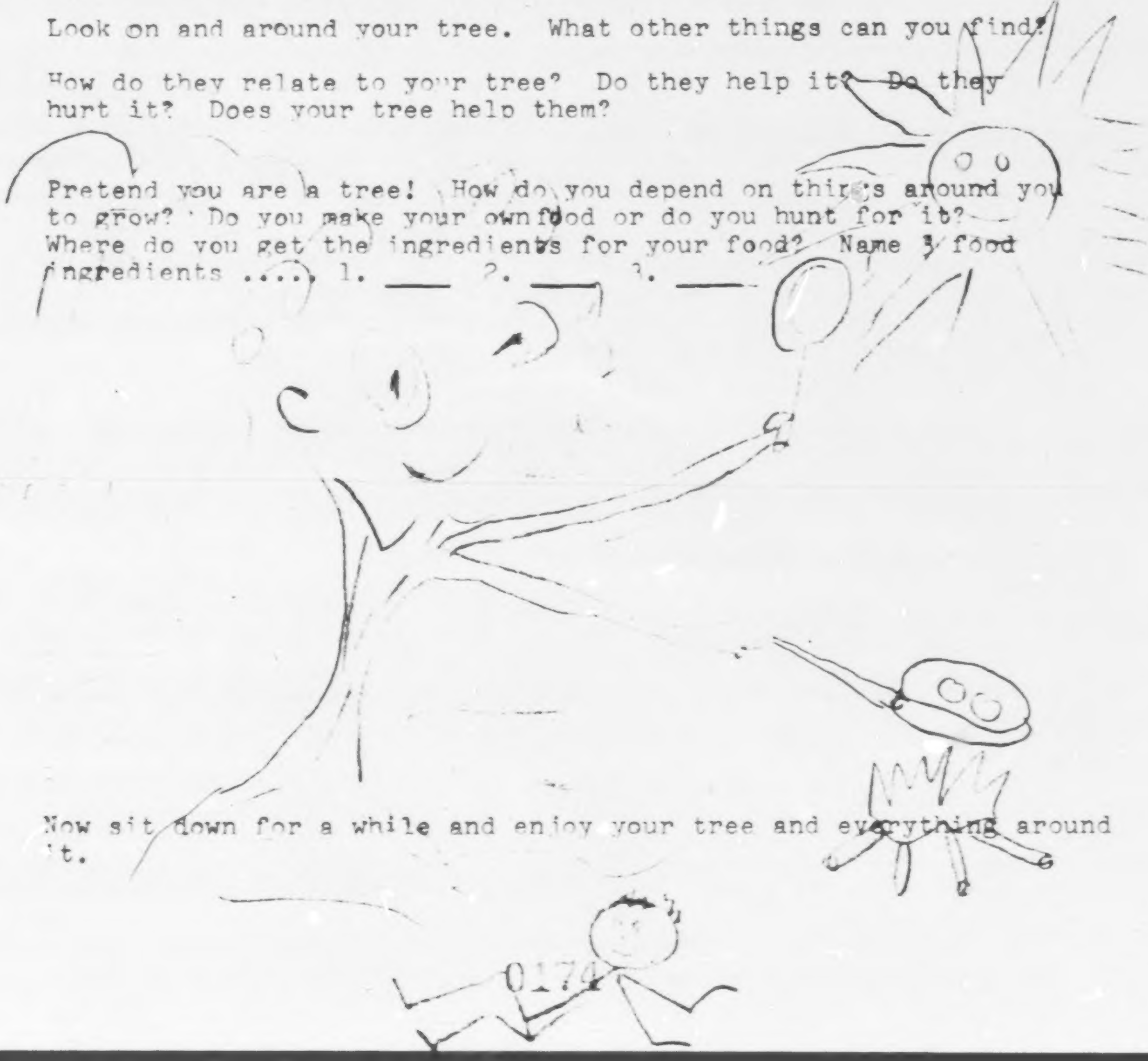
What are some ways you can have fun with a tree?

What important things do we get from trees?

Look on and around your tree. What other things can you find?

How do they relate to your tree? Do they help it? Do they hurt it? Does your tree help them?

Pretend you are a tree! How do you depend on things around you to grow? Do you make your own food or do you hunt for it? Where do you get the ingredients for your food? Name 3 food ingredients ..... 1. ___ 2. ___ 3. ___



Now sit down for a while and enjoy your tree and everything around it.

EXPERIENCING A TREE

By: Marian Carpenter

Trees are the largest of all land plants. Like other green plants, they have leaves and produce flowers and fruit, but they have special structures that go with bigness. The woody stem we call the trunk belongs to trees alone. It is covered by the tough bark that protects the living tissue beneath it from drying out and from bacteria and animal enemies (much like human skin). As the tree trunk grows the bark peels and folds and wrinkles.in ways that are distinctive for different kinds of trees. Compare a London plane tree to a Norway maple in this respect. The thousands of leaves are arranged in such a way that some sunlight hits every leaf. The buds form in the summer ready to produce leaves and flowers the following spring. Powerful roots, both support the tree and carry water for food production. Finally, trees produce millions of seeds, all provided with some technique for dispersal and planting.

The bigness of a tree gives it a special quality. Children enjoy measuring trees with hands and arms. How big around is the trunk? Can you put your hand around it? Two hands? Your arms? Does it take more than one child to reach around it?

Examine the bark. Look at its ridges and patterns. Feel its texture and hardness. A bark rubbing made with a wax crayon and thin paper makes a record of the tree. Rubbings of several trees may be compared for different patterns. Bark scars, like scars on children's skin,tell the story of accidents and injuries.

How are the leaves shaped? Are they all alike in shape? In size? In color? How do they grow out of the branch? In the fall of the year, leaves may be gathered and placed between the pages of an old telephone book or a magazine with absorbent pages. After they have dried, they may be mounted between two sheets of clear contact paper or put between two pieces of wax paper and ironed with a cool iron.

The teacher may clip a few leaves in the spring for class use. Even though a tree has many leaves, children should be taught that indiscriminate gathering from lower limbs, deforms the tree, and spoils everyone's enjoyment. Leaf rubbings, like bark rubbings, may also be made. Beautiful prints can be made of small leaves by placing them on a stamp pad, vein side down, covering them with a piece of newspaper, and rubbing them until they are ink coated. Then transferring them to paper, ink side down, covering them with another scrap of paper, and rubbing the whole surface.

In the winter, buds may be examined on the tree, and the teacher may cut a twig to take inside and force in water.

Fruits, seeds and flowers will all have their seasons. Discovering the small flowers of some trees can be a real adventure.

Tree shapes vary - both by kind of tree, and by location, and their reaction to sun and shade (compare a tree out in the open to one close to a building or 2 growing close together). Tree shapes may be drawn, or children may use their arms to show how branches grow in relationship to the trunk.

Obviously getting acquainted with a tree requires a series of contacts.

New York City Board of Education Booklets, Science K - 2, & Science 3 - 4.

K - What's Alive? Science K-2, p. 35

Gr. 1 - Plants in Our Neighborhood, Science K-2, p. 141-145.

Gr. 3 - The Needs of Plants, Science 3-4, p. 54-66

Gr. 4 - Getting New Plants, Science 3-4, p. 194-196.

Teacher References:

Rublowsky, John - Nature in the City - Basic Books, Inc., p. 122-134.

Children's Books:

Darby, Gene, What is a Tree?, Benefic Press

Lerner, Sharon, I Found a Leaf, Lerner Publ. Co.

Selsam, Millicent, Maple Trees, Morrow

Selsam, Millicent, Play With Trees, Morrow

Watts, May Theilgaard, First Guide to Trees, Doubleday

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BUILDING A BIRD FEEDER ON YOUR SCHOOL SITE

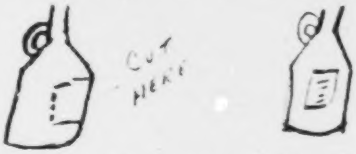
By: Marian Carpenter

The bird feeder you are to build is made of extremely simple material and the sunflower seeds and raisins you need are included in this packet, but are also available in most supermarkets.

Buy a one gallon or 1 1/2 gallon plastic container of CHLOROX bleach. Drain the bleach out and save it for use in another container. Rinse the plastic container thoroughly. Retain the top.

Cut the face of the jug out with a sharp knife, a single edged razor blade, a scissor, or other suitable instrument. (See sketch) Do not cut away more than one third of your container or you will seriously weaken the strength of the feeder.

ILLUSTRATION:



One may go to any extent decorating the feeder. (Red and green seem to be good feeder colors.) Do not paint interior, at the risk of poisoning birds.

In many city schools you will have to be content to use a window sill as a suitable place for the bird feeder due to the fact that there are no trees or bushes available. However, this should not discourage anyone. It is sometimes to your advantage to have a sill feeder. The visiting birds can be easily seen by the children in the classroom.

A successful feeder clearly shows a cycle between the food the birds eat and the birth and growth of green plants. This is an accompanying exercise.

Remember that birds will not come to your feeder because they want to please you or because they like the feeder, but only because they want the food that is in it. If there are other available sources of food in the neighborhood which is either preferred by the bird or more accessible, less dangerous from a wary bird's point of view, then your feeder might not attract much notice. Once the birds begin to visit, however, you can be sure they will return if they feel safe.

Recommendation for Placement

Buildings are inherently unnatural for birds (except the originally cliff-dwelling common pigeon) therefore a window sill feeder will be approached far more cautiously, if at all. We suggest that if you have even the smallest amount of vegetation on your school site, a tree or a shrub will do, that you place your feeder there. Birds are more likely to see it since they are attracted to vegetation naturally whereas they are not to sixth floor window sills.

Seasons

Winter is the most active season around a bird feeder because less food is available from other sources. However, once visited, birds will use your feeder in Fall and Spring with great regularity.

Should there be little activity around your feeder, be patient. There may be a number of reasons for this:

1. The birds haven't seen it.
2. The birds don't know what it is and are reluctant to investigate.
3. The feeder is new and the birds are being cautious.
4. Humans are always too close to the feeder.
5. There is some other danger to the birds.
6. There is enough food from a less dangerous source.
7. There are just no birds in the area.

Try moving your feeder if you are not having much success. It may be in a bad place. Wait at least a week before doing so, however, and remember that the watchword for any kind of activity of this sort is PATIENCE.

It is recommended that each teacher check with the custodian of the school with respect to positioning and attaching the feeder to a tree or shrub. Fairly sturdy string through the feeders handle is adequate when attached to a firm limb.

Put a fairly heavy stone in the feeder's bottom to keep the "wind effect" blowing of the feeder at a minimum.

Maybe place a ruler through the feeder's back as a perch for investigating birds.

See to it that the feeder is at least 6 feet or so off the ground to protect the birds from marauding cats and the feeder from vandals.

Be able to take your feeder in at night and on weekends. Feel free to mix in other types of seed ("Winter Life",etc.) with the seeds and raisins.

Activities to do in conjunction with your bird feeder:

1. Keep track of birds visiting your feeder (a notebook).

2. Do simple sketches and descriptions of the birds: shape, color, flight pattern, observable health, etc.

3. Purchase a simple bird guide for subsequent information concerning the background and habits of common North American species of birds. This will also be a valuable source of bird identification. An inexpensive readable guide to birds is contained in the paperback "Golden Series."

4. Attempt to procure through parents, etc., a few sets of binoculars or viewers. Any power greater than four power is acceptable. These viewers come in very handy for good close ups of bird behavior.

5. See if you can notice the different patterns of behavior on the part of different species. Are the jays seemingly more nervous at the feeder than the house sparrows? How long do different types of birds remain at the feeder? The use of a stop watch is helpful here and extends the learning experience.

6. Do you find an increase or decrease on the feeder during the hours:

a. when you first arrive at school.
b. during mid-day around lunch time
c. at the time you leave school
d. at dusk (if you happen to live in the neighborhood)

Can you formulate what you would consider good reasons for this behavior? If so, see if you can make a color chart from your findings which shows the different environmental conditions at different times of day. Use magazine pictures or draw your own.

BIRDS

By: Marian Carpenter

Anatomy:

Animals with backbones
Egg layers
Feathered
Two-legged
Two-winged (not always for flying, however)
Warm-blooded: Average normal body temp. = 110: highest
  body-heat of all animals; Human normal temp. = 98.6
Proportionately large heart
Breathe 100-300x per minute, human breathes 16x per minute
Enormous food intake
  Because high body temp., plus breathing activity burns food up very rapidly.

Expression: "You eat like a bird." Completely incorrectly used. A person couldn't possibly eat like a bird. Young birds have been known to eat their weight in food every day. Found in the stomach of a nighthawk: 2000 winged ants that it had eaten during one summer day's flight.

Young robin observed eating about 14 feet of earthworms in a single day.

If a newborn human ate as much for his size as a baby crow, in 8 months he'd weigh about 200 lbs.

Let's pretend you are an average 4th grade student weighing 80 lbs. Here are some samples of what you would eat in one day: 58 prepared cans of soup, or 71 jars of peanut butter, or 142 frozen fish T.V. dinners, or 61 loaves of white bread, or 40 quarts of milk, or 142 pints of ice cream, or 80 large bags of potato chips.

Food: Insects, seeds, fruits, fish, crustacea, smaller birds, rodents

CLASSIFICATIONS ACCORDING TO PREFERRED TYPES OF FOOD:(BILL TYPE)

A. Seed eaters: sparrows: bill: short, thick, strong constructed for cracking

B. Fruit eaters: robins and catbirds; bill: longer, more pointed than seed-cracking bills.

C. Insect eaters: warblers and scarlet tanagers; bill: thin bills

D. Nectar and sap eaters: hummingbirds; bill: slender, tongue: long, darting

sapsuckers; bill: strong, like woodpecker; tongue: bristly, constructed to get sap after drilling round holes in tree trunk.

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E. Flesh eaters: Eagles, hawks, vultures (bills are weak, therefore they have adapted to eat only decaying meats), owls; bill: strong, curved sharp, constructed to tear flesh from bones (rodent control)

F. Many birds like a variety of foods, including: seeds, berries, insects, dry bread, table scraps

SHELTER

Determined by places that provide favorite foods.

NESTS: Single purpose: to raise young
Nest sites determined by: (1) availability of food; and (2) safety from predators

Two main categories of developmental types:

A. Precocial group: Well developed when hatch. Young are ready to hunt for own food almost immediately. Therefore, nests are usually on the ground so young can hunt and hide quickly.

B. Altricial group: (altric = nurse (latin)): Not so well developed when hatched. Young need shelter from weather and predators while both parents are gathering food. Therefore, nests are usually off the ground. Songbirds, owls, hawks, pigeons, hummingbirds, woodpeckers.

TYPES OF NESTS:

1. Holes in trees: preferred type of home, not enough holes, however birds fight to secure hole.

Solutions:

A. Artificial holes: bird houses can expand population. Birds will nest close to one another if proper shelter and food.

B. Nests with roofs:

1) Cactus wren builds a cup-shaped nest which lies on its side.

2) Meadowlark is a meadow bird that builds its dome-shaped nest with roof (igloo) in tall grass. It includes surrounding grass in construction for camouflage.

2. Baltimore Oriole - builds hanging nest out on the thinnest twig of tree, preferably an elm. These twigs will not support the weight of natural predators such as squirrels, weasels, etc. Some types of orioles choose thorny trees. Some build colonies of nests in trees which house hornets' nests, while neighboring trees may go completely uninhabited.

3. Eagles, Ospreys, Large hawks: Choose very tall, dead trees, Add onto same nest year after year. Construction: tremendous mass of sticks with little spaces in lower portion.

4. Smaller birds nest in space inherent in nests of large birds ONLY IF THOSE LARGE BIRDS DO NOT FEED ON SMALLER BIRDS.

5. Purple Martin (member of the swallow family) Nest communally in bird apartment houses. Feed on small flying insects. This method of nesting reduces competition for nesting sites. They do not have to defend a territory in order to obtain sufficient amount of food.

   A. Other types of swallows:

      a) Barn swallow: mud nest, cup-shape, adheres to side of rafter.

      b) Cliff swallow: gourd shape, built under ledge.

      c) Bank swallow: excavates burrow in sand banks along bluffs. Goes 3 feet straight into the bank

6. Nest parasitism: i.e., Cowbirds in Old World; Cukoos in New World. Do not build their own nests. Instead, they lay eggs in another bird's nest and their young are raised by that bird. In some species the male cukoo distracts the female inhabitants while his mate lays her eggs in the parasitized nest.

   Methods of adaptation:

   A. The young of cukoos and cowbirds grow faster than those of most other species. They are, therefore, more successful in getting a large supply of food from parent bird.

   B. They push proper chicks from the nest. This is purposeful action designed to insure more food for themselves.

   C. They are careful to choose nests of species that will feed young indiscriminately. There are some species that will either throw strange eggs out of the nest or will build another layer of nesting material over these eggs.

   D. Some cukoo species' eggs and babies look like the host species offspring. (They parasitize only one species)

   E. Some are capable of imitating the song of the parasitized species.

7. Non-nest builders: Shore birds do not need nests. The places they choose in which to lay eggs are less conspicuous than nests would be. The scrape sand out and deposit their sand-colored eggs in the indentation. Their young are also sand-colored. Some others lay eggs on pebbles.

8. Curiosities

   A. Megapodes: Do not incubate eggs by sitting on them. Instead they lay their eggs in a pile of vegetation. Heat of rotting vegetation warms eggs. The male guards the eggs, and adds to or subracts from the vegetation.

   B. Spotted sandpiper: Female lays eggs for 3 males who sit on them to incubate them. Then she finds 4th mate and settles down to incubate the eggs of this union.

NESTING MATERIALS

Robins - use mud to plaster nests
Chipping sparrow - makes a horsehair lining
Eider duck - lines nest with fluff pulled from own breast. Most birds like to line their nests with something soft, i.e., stray feathers.
Crested fly-catcher - includes piece of shed snake skin.

Many man-made materials are used, such as tissue, wool, hot dog wrappers, etc.

Intriguing facts -

Vultures and storks are carrion-eathers. They are bareheaded so as to avoid blood and gore and parasites clinging to feathers when eating.

New World vultures are actually relatives of storks - they are the only two families known to defecate on their legs in order to cool them.

ACTIVITIES WITH BIRDS

I. Worms
  a. measuring
  b. adding

II. Bird watching
  a. color-special markings
  b. solitary or in groups
  c. size
  d. gait - hop, run, walk
  e. sound it makes
  f. bill type
  g. food it is searching for
  h. wing movement when in flight
  i. size of feet

III. Locate a nest. Is it found in the:
  a. fork of a limb
  b. among climbing vines
  c. in a hollow tree
  d. hanging from tips of long, slim branches
  e. under eaves of house or other building
  f. man-made bird house
  g. some other place

IV. Examine the materials used in the nest
  a. identify
  b. sources of materials

V. Find feathers

large = flight feathers, contour feathers, help form shape, aid in flying

small = fluff feathers, insulation

1. spray with a few drops of water, note oily coating
2. examine the quill- stem hollow - for lightness, flexible, tough, strong
3. examine the hooks at ends - use hand lens, the hooks hold the feathers together.

The Urban Environment

By: Harry Betros

In what ways are trees important to living things?

Exercise A

Problem: What can we learn by examining tree twigs

Equipment: hand lenses, pruning shears, rulers

Method: Collect a few twigs (ends of branches) from two different trees.
Examine them carefully. Record in the chart below some of the characteristics of each of the twigs examined.

Twig Characteristics

	Tree #1	Tree #2
Color of bark		
Diameter		
Bark texture		
Markings on bark		
Shape of buds		
Color of buds		
Length of last year's growth		
Age of twigs		
Other markings		

Questions

1. Did you note any differences in the twigs observed?
2. Could twig characteristics be used to identify different trees in winter?
3. Can you suggest why broad leaved trees drop their leaves in winter?

Questions for Further Investigation

1. How many ways do trees or tree products benefit man?

2. How can we estimate the amount of water given off by trees?
3. In what ways are trees beneficial to animals?
4. In what ways do trees differ from each other?
5. Are the leaves on a tree always the same size and shape?
6. How do trees protect the soil?
7. How can we estimate the height of a tree?
8. In what ways are fruits and seeds useful in nature?
9. What mechanisms or devises do seeds have for getting from place to place?
10. Trees in art, music and poetry

ADOPT A PIGEON

Pigeons, being natural cliff dwellers, have adopted beautifully to New York City. They can be found everywhere, and become fast friends if food is offered. Pigeons are active birds and need space. Therefore the window sill in your city classroom has the possibilities of being an excellent feeding area while providing a means of observation. Pigeons have a wonderful wing action and can brake in the air before alighting on the sill.

Pigeons, ancient street dwellers, are not particulary fussy and will eat almost anything made out of grain. Pumpkin seeds, corn, and raisins are best, but bread crumbs and popcorn are also appreciated. Dandelions and lettuce make fine vegetables to add to the diet and rock salt is also good for them. Water should be supplied because often a pigeon likes to take a drink after a hearty meal. The equipment you make and use must be kept clean so as to insure the health of your birds.

Pigeons become tame and will feed right from your hand and even perch on your finger. They will come back everyday if food is supplied. If interest is stimulated a coop can be constructed on the roof of your building. Here pigeons can be bred and trained to race or do tricks. There are many books available to teach you how to do this. Some children already have experience raising pigeons as it is a hobby for many of them--all you have to do is ask.

Children can keep a journal on the pigeons by observing the following:

Colors and markings
Group behavior -- pecking order
Size -- compare male and female
Gait -- hop, jump
Sounds -- chirps, squawks,
Bill type and size -- how do they eat and drink
Feet size -- color
Wing movement
Feathers -- size, color, construction, observe with a hand lens.
Compare down with flight feathers and explain variations.
Observe the hooks that hold the feathers together.

Seasons -- spring and fall feeding cycles compared to winter

Activities and future lessons can be developed in the following ways:

Draw and paint pictures of the birds
Construct with paper mache and glue on feathers
History of pigeons -- They are not native New Yorkers; they are immigrants.
Pigeons, as scavengers. Compare with the wild dog packs that roam the Bronx, and rats that live all over the city
Develope concepts of birth control among pigeons. Should it be done and how. Implications

Remember to be patient! It takes time to build up a family of pigeons. If they don't appear within a week you must consider some factors. You must be aware of the accessability of your food compared to food found in other areas in the neighborhood. Think about it from a pigeon's point of view! Sometimes, the birds haven't seen the feeder, or don't know what it is. They are usually cautious and reluctant to investigate. Perhaps the people inside the window are frightening or the pigeons just plain sense danger.

Remember that you expect children to be different as a result of the experiences your directing. Awareness of the word around them grows slowly day by day. Your curriculum must be on-going. A single project can lead into many avenues of thought and possibilities of experience for children. Pigeon study provides an excellent resource for on-going study.

DID YOU KNOW?

The Passenger Pigeons of North America once traveled in flocks of millions. In 1869, eleven million pickled, salted, and dried Passenger Pigeons were shipped to market. Big nets were set up and a captive pigeon was tied to a perch or stool, nearby to call the wild birds down to be caught. From this activity came the term "stool pigeon."

MAKE A PIGEON FEEDER

Use an empty plastic bleach container. Be sure to rinse it out, and leave the top in place. Cut the face of the jug with a scissor or razor blade. Do not cut away more that one third of the container or it will be too weak to use.

You can paint it, but only on the outside so as not to risk poisoning the birds. Sometimes the odor of paint will drive them away. Put a rock in the bottom so the wind won't disturb it.

Secure it with wire or heavy string. It is best to place it on a platform which is bolted down and grain put around it as well as inside the feeder, to attract the birds. Your custodian might be willing to help you.

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REFERENCE MATERIAL FOR WILD FOOD

Angier, Bradford, Free For The Eating, 1966, Stackpole Books, Harrisburg, Pa., 191 pp. $4.95 (Many delightful recipes for a great number of common plants.)

Angier, Bradford, More Free For The Eating Wild Foods, 1969, Stackpole Books, Harrisburg, Pa., 192 pp. $4.95

Berglung, Berndt and Belsby Clare, The Edible Wild, 1971. Charles Scribner's and Sons, New York. 188pp. $7.95 hardcover, $2.95 paperback. (includes many recipes)

Chase, Myron, Field Guide to Edible and Useful Wild Plants, 1965 Nature Study Aids, Inc., Red WIng, Minnesota, 139 pp. $1.50, (Good handbook for identification of plants. Do not follow his recipes for honey locust seeds or pods since both contain poisonous alkaloids.)

Coon, Nelson, Using Wayside Plants, 1961, Hearthside Press, New York, 288 pp. $5.95 (Recipes and general information).

Fernald, M.I. and Kinsey, A.C., Edible Wild Plants of Eastern North America, 1958, Harper and Row, New York, 452 pp. $6.95. (Describes Plants with little detail on recipes.)

Harris, Ben Charles, Eat the Weeds, 1971, Barre Publishers, Barre, Mass., 212 pp. $3.95 paperback. (Guide on location and uses of edible plants.)

Gibbons, Euell, Stalking the Wild Asparagus, 1962, David MaKay Company, New York, New York, 303 pp., $3.95 paperback (Very good information, identification and recipes.)

Gibbons, Euell, Stalking the Healthful Herbs, 1966, David McKay Company, New York, New York, 303 pp., $3.95 (Nutritional and medicinal values of common plants explored with recipes included. Good supplement to above.)

Medsger, Oliver P., Edible Wild Plants, 1966, The Macmillan Company, New York, 304 pp., $7.50. (Identifies many of the wild plants.)

Kingsbury, John M. Deadly Harvest, 1965, Holt, Rinehart & Winston, New York, $1.50 paperback. (A Guide to common poisonous plants.)

Simmonite and Culpeper, Herbal Remedies, 1967, Universal Award House, Inc, 235 East 45th Street, New York, $[illegible].95. (A guide to herbal home remedies for common ailments and serious ones.)

Meyer, Joseph E., The Herbalist, 1918. Published by the author. (Includes pictures, some in color, descriptions, medicines, properties and uses.)

Field and Stream "Fish and Game Cookery," 1967, 1971, $1.00, Holt, Rinehart, & Winston, Inc., 383 Madison Avenue, New York. (How to dress and prepare fish, fowl, big and small game, includes advice on how to freeze and store the meat.)

Petrides, Field Guide To Trees and Shrubs, Peterson, Field Guide to Wildflowers. Each $3.95 paperback. Recommended to use for postive identification of wild plants.

Topic: Artificial Materials found in the Streets and Classroom

Objectives: To find artificial materials in the class and street and determine why they were made and how they relate to things in nature.

Concepts:
1. Artificial things, disposables and garbage are a part of the city child's life.
2. Artificial things are made for reasons.
3. They usually imitate qualities of natural materials and are made to replace natural materials with certain benefits.
4. They are sometimes harmful to the environment.

Vocabulary: Artificial, natural, plastics, dacron, orlon, etc. bio-degradable.

Materials: Styrofoam cup, cork, cardboard, leather, plastic leather, whipped cream, cream topping.

Instructional Procedures and activities:

1. Go into the streets and gutters an collect the artificial materials you find. What are they made of? For what reasons? What natural things do they replace i.e. An aluminum alloy can ultimately replaces the tin can because tin is scarce, aluminum is cheaper and lighter, however aluminum does not degrade.
2. Be able to show that man-made products often take concepts and qualities from nature.
   i.e. Cardboard is hollow which makes it strong yet light. The same applies to bird's bones. What did the cardboard replace.
   Using a microscope show the similarites between cork and styrofoam.
3. Scientists, when making new products, try to improve upon the natural. What are the qualities of cotton? Of those qualities what did they retain? What did they improve on when they made John's dacron shirt? Somebody might be wearing imitation leather or fur. Compare and contast. Lightweight, longer wear, waterproof, economical.
4. However many artifical products are harmful to the environment. Go out and look for oxidation then look for oxidation in aluminum. From your junk collection. Which products return to nature? Which don't? Burn plastics, paper, cartons etc. What happens? Discuss landfills and the utilization of garbage.

References:

Aylesworth, T. It works like this

Kavaler, Lucy. The Artificial World Around Us

Leechman, Douglas. *Vegetable Dyes from North American Plants*. Webb Publishing Company, Toronto: Oxford University Press, 1945.

Mordanting Recipe

Alum 4 oz. Cream of Tartar 1 oz. Material (dry) 1 lb. Water 4 gal.	Dissolve the solids. Enter the goods. Simmer for 30 min. Allow to dry for 3 or 4 days, preferably in a dark place.

Standard Dying Recipe

Crush dye-plant and soak overnight.
Boil dye plant one hour-Strain.
Enter goods and simmer 30 min.
Rinse and dry.

SOURCE	PART	COLOR	QUANTITY	VARIATION
Alder	roots	brown	1 lb.	2 oz. alum.
	leaves	yellow-green	4 lbs.	" " "
	bark	yellow-brown	4 lbs.	" " "
Apple	bark	golden-yellow	1 lb.	
Beet	root	yellow	4 lbs.	no mordant
	"	red	"	
	"	rust-brown	6 lbs.	1 oz. alum
White Birch	leaves	yellow-tan	6 qts.	
	bark	rose-tan	½ lb.	
Bloodroot	root	yellow-orange	2 oz.	
Blueberry	berry	blue	2 lbs.	
	"	grey	"	1 oz. alum
Buckwheat	stalks	blue	"	allow stalks to ferment 5 days
Wild Cherry	bark	peach	½ lb.	1 oz alum and 1 oz.cm. tartar
	"	tan	1 lb.	1 oz. alum and no cm. of tar.
	roots	blue-violet	2 lbs.	
Dandelion	roots	red-violet	2 lbs.	
Elderberry	fruits	blue -violet	2 lbs.	2 oz. alum
	"	purple violet	4 lbs.	"
Goldenrod	flowers	yellow-orange	1 lb.	"
Wild Grape	fruit	violet	4 lbs.	"
Hollyhock	flowers	red	1 lb.	"
	leaves	yellow-green	2 lbs.	2 oz. alum and ½ tsp. amonia
Horsetail	stalks	yellow-grey	2 lbs.	
Lily of the Valley	leaves	yellow	2 lbs	2 oz. alum and ½ tsp. amonia
Marigold	flowers	yellow	½ lb.	1 oz. alum and 1 tblp. amonia
	"	orange	3 lbs.	"
Nettles	roots, stalks and leaves	green	2 lbs.	

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SOURCE	PART	COLOR	QUANTITY	VARIATION
Oak	bark	brown	2 lbs.	no mordant
Onion	skins	burnt-orange	½ lb.	
	onions	yellow-green	1 lb.	2 oz. alum
	red onions	deep orange	2 lbs	2 oz. alum & 1 tbsp. amonia
Parsley	leaves	yellow-green	2 lbs.	2 oz. alum
Pear	leaves	yellow-tan	"	
Plum	bark	red-brown	3 lbs.	
Spinach	leaves	green	4 lbs.	2 oz. alum
Spruce	cones	yellow-orange	4 lbs.	
Sumac	berries	dark tan	2 lbs.	
Sunflower	flowers	yellow	2 lbs.	2 oz. alum
Tea	leaves	rose-tan	½ lb.	no mordant
Walnut	hulls	dark brown	2 lbs.	
Willow	bark	rose-tan	2 lbs.	
	leaves	yellow	1 lb.	2 oz. alum
Zinnie	flowers	yellow	2 lbs.	

TWENTY-FOUR INCH FIELD TRIP

by Bob Marano

Headstrom, Richard: *Adventures With A Hand Lens*, J. B. Lippincott, New York, 1962.

Very useful for children - does a good job explaining the uses of a hand lens and a great many natural objects as viewed through them.

Lutz, Frank E.: *Field Book of Insects*, G.P. Putnams Sons, New York, 1948.

A very good teacher reference - good drawings and color prints of many classes of insects.

Milne, Louis and Margery: *The Arena of Life The Dynamics of Ecology*, Doubleday Natural History Press, Garden City, New York, 1971.

A very comprehensive look at ecology in uncomplicated language. Very easy to understand the concepts presented.

Murie, Olaus J.: *A Field Guide to Animal Tracks*, Houghton, Mifflin Company, Boston, 1954.

Excellent identification for animal tracks.

Petrides, George A.: *A Field Guide to Trees and SHrubs*, Houghton, Mifflin Co., Boston, 1958.

Excellent identification using leaves, fruits and silhouettes. Very detailed descriptions.

Our Living World of Nature, McGraw-Hill Book Co. The World Book Encyclopedia, New York,

A beautiful series of eleven aspects of the environment (rivers, streams, forests, etc.) which can be understood by a fourth grade reader, but which has enough information for Junior High School pupils. Well photographed and illustrated.

Zim, Herbert, *Golden Nature Guides for: Flowers, Trees, Non-Flowering Plants, Insect Pests, Pond Life and Spiders*, Golden Press.

All are excellent, pocket-sized books utilizing very accurate drawings and information.

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THE POND OR LAKE

By: Deke Pederson

How did it get there? Is it natural or man-made? Where does the water come from, where does it go? Map out the pond, how large it is and how much water does it contain? What is the temperature of the water? Is it the same throughout the pond? Does the temperature vary with depth, why? What is the average temperature of the pond? Make a graph of the average temperature throughout the year. What is the bottom of the pond like? What type of animals live on the bottom? How deep is it, what is the average depth? Does the amount of life vary with depth. What sort of animals live in the reeds and grasses? Do any prefer the shade of an overhanging tree? What sort of animals live in the water, on top of it? How many mammals can you see using the water? What kind of animal tracks are along the banks - make plaster casts of them. Do the type of plants in the pond change with depth? How many different kinds can you find? How are they adapted to that part of the pond, do the plants stop growing, why? Are there any signs of pollution. if so what is its source? Are there any micro-organisms in the water? Does the type vary from place to place? Are the same ones there that were there a week ago? Make a nature trail around the pond with stops at points of interest? Make a transect of life across the pond? Look at the food web that exists in the pond--make a bulletin board to illustrate it. What is the ph of the water, does it remain the same throughout the year? Set up a balanced aquarium. Is the lake dying out? Build animal homes, put out food.

THE STREAM OR RIVER

How wide is it? How fast is it going, what is the volume of water passing through it? Does it always remain the same? What type of particles is the river carrying? Has the river ever changed its course? Where is it eroding and depositing? Is the speed of the river the same throughout? What sort of life inhabits the river? Collect some, bring it back and study it then return it. Watch larva go through metamorphosis. How are the plants and animals adapted to life in the river? Make a stream table. Is the stream young, middle or old aged, how can you tell? Does man use the river? For what and has he changed it? Are there any animal homes along the river bank? Study the life of a fish found in the pond. Is the water clear or dirty and what made it that way?

These are just a few of the many possibilities which could be pursued. Use your imagination if you live in the city and can't get to a park that has a pond in it go out after a rain-storm and the sidewalks will be covered with miniature ponds all being drained into a huge river - the gutter. What part if any does the water play? Do the birds use it? Study the hydrologic cycle--what happens to the rain after it falls? What was the temperature of the sidewalk before the rain--after the rain did the sidewalk cool off?

It can easily be seen that by offering a program of this sort the children will begin to develop an interest in the vast web of life that exists and appreciate life and its quality. The children will also gain in the long run since they will be involved in far more than just ecology. Skills such as collecting, identifying, teamwork, math, reading and all of the science disciplines are all directly involved.

This is being written with the hope that the lessons which arise from it will instill within children a better understanding and appreciation for the complexity and interdepence which exists between all species and their environments. It is important for children to see and realize that a balance does exist and we are close to upsetting it because once it is upset there will be no rebalancing it. Aside from this, a secondary reason for wanting to study ecology is that it can involve all of the sciences or can be limited to one discipline depending on how the lesson is planned. Ecology of fresh water was chosen simply because a limit had to be set on the scope of this paper. Even to lightly cover all that ecology encompasses would require a large book. Also the fact that almost anywhere you go there is some sort of water source that can be studied which lends to the adaptability of this paper. It was written with the intent that it would only be a catalyst and aid by which you could develop your own program that would suit your own area. A listing will be given later of some of the things which can be investigated but once again it is by no means complete. Using your own creativity and imagination you can come up with an endless list of possibilities. Also once the students become interested they will generate many more projects through their questioning and new found interest. You will find that if you do some pre-planning and show some enthusiasm the children will have a really meaningful learning experience.

The outdoor classroom is truly unique for this reason. It provides a welcome break from the tedium of lecture, and the all too familiar classroom walls. It will be far easier for the child who has a problem visualizing, a handicap not all that uncommon in this age of T.V., the chance to see and feel first hand exactly what is being talked about. By being in direct contact with the subject matter it becomes more relevant and the child wants to learn about it. Therefore, he will learn a lot more by going out and doing and will leave him with a sense of accomplishment--something a lecture or reading a textbook could never do.

NATURE UNDISCIPLINED

by Dr. James H. Gillette

Field trips to botanical and zoological gardens, police and fire stations, city, county and federal agencies located near the school, are excellent outdoor educational experiences. It must be noted, however, that, 'despite excellent intentions, even the best zoos may be creating animal stereotypes that are not only incorrect but that actually work against the interest of wildlife preservation.' This observation is supported by the following:

"What did you learn at the zoo today,
Dear little boy of mine?
I learned that an elephant likes the shade
I learned that a tiger paces his cage
I learned that monkeys imitate people
And do funny things to one another
That's what I learned at the zoo today,
That's what I learned at the zoo today,
That's what I learned at the zoo."[1]

Teachers should not limit field trips to the aforementioned facilities. Open fields, pocket parks, woodlots, parking lots, and hedgerows surrounding our schools are areas rich with educational potentials.

Nature is not disciplined in presenting her many treasures. Teachers and students alike find that learning can be fun in the unstructured atmosphere outside restrictive buildings. Spontaneous, first hand experiences outdoors may be retained longer and be of greater value because they deal with real life situation.

Working in the outdoors with natural materials and relating real situations to life cannot be described as an academic discipline. Education in the outdoors is not a science. Some aspects of outdoor education can be scientific but the major reason for going outdoors is to explore and learn about things that can best be learned there. If given the option between first hand experiences and vicarious experiences, most teachers will select the former.

Because nature is undisciplined, teachers and pupils need to be prepared for the outdoor experience in much the same way as they are prepared for a classroom task. Goals, behaviorial objectives, written resources, and class plans must all be prepared in the same manner as they are when planning classroom activities. Outdoor education is simply one more media of achieving educational goals and is not therefore, a panacea designed to cure all the ills attributed to schools. Used wisely, outdoor education will enrich the curriculum, bring to life many abstract lessons, and provide real life situations that may make the learning experience exciting and fun.

---

[1] Natural History, August-September 1972, The Journal Of The American Museum Of Natural History, Robert Sommer, "What Do We Learn at the Zoo."

Ecology Is Exciting!

by Jean Druffner

"Adventure is not in the guidebook
And beauty is not on the map
Seek and ye shall find."
Terry and Renny Russell ON THE LOOSE

Ecology is essentially the study of life:
the ways of functioning organisms---
how they sustain themselves
how they benefit from others
how they benefit others
It's the way living things adapt to their environment----
the niche that every being occupies and that
causes every other being to be able to occupy
its own niche.
Ecology is the study of the interrelationship of living
things with their environment----Earth.

What's it all about?
It's about life and death
existence
the purpose of things
and the natural way that things have come to
be as they are today.
It can be a study of a green leaf supplying the breathe
the weasel
the hawk
the spider
the human
Perhaps, it's about the way snakes keep the rats and mice
under control
or the way worms aerate the ground
or the way fungi help provide the rich soil of
the forest.

What is ecology?
It's science----that is the science of life.
Better yet, it's science in perspective----the way of
things, the progression of earth's ways.
Ecology is the web of life.
A web can be entanglement of
a spectacularly conceived interrelationship.

Ecology Is Exciting!

SIDEWALK SCIENCE

By: Claudine Johnson

What is Outdoor Education Sidewalk Science in an urban setting as New York City (the five boroughs). Our materials and book selections are not to duplicate the already established curriculum of the Board of Education of New York City. Rather we wanted to create a conscious awareness that moves from the closed confines of the classroom and school setting to the out of doors. Sidewalk Science for New York City is not fields, woods, rivers, brooks, streams, etc. Those schools in New York City which happen to be located by such are fortunate indeed. Sidewalk Science is not always finding trees, birds, insects, flowers, etc., at our doorstep. Sidewalk Science is apartment buildings, homes, streets, school yards, sewers, pigeons, utilities, airplanes, stores, helicopters, garbage, pollution, an occasional tree, ants, stray animals, roaches and debris. What understandings can arise from all of this? Are there evidences of erosion, oxidation, beauty, ugliness, weather-wear, insects, animals, pollution? What does a cracked sidewalk tell us besides the fact that it is cracked? What is a clump of weeds doing in a school yard? How does learning the history of wood in a classroom create a better understanding of trees, their growth, similarities, differences, uses, beauty? How do the dependencies of the classroom, school buildings, school neighborhoods, etc., help us to understand the dependencies of nature?

None of our suggestions are graded. The type of and in depth planning you do, will largely depend on your school setting and class.

HAVE FUN!

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SIDEWALK SCIENCE

PUTTING THINGS INTO FOCUS

1

1. Have Fun and Be Careful.
2. Have Fun and Understand.
3. Have Fun and Learn.
4. Your Children Learn Science via: Finding Out. Experimenting, and Reasoning.

II. WHERE??
1. Classroom
2. School Building
3. School Yard
4. School Neighborhood
5. Vacant Lot

III. HOW??
1. Let's look inside your classroom. What Science Learnings do we discover with children? List all of the things that we might find in your classroom. Begin to think about: a. where they came from; b. how they are made; what they first look like; d. what was living; non-living; e. why do they look so different; f. what made them look different: g. which things came from the same materials.

2. Your classroom list might look like this-

windows crayons scotch tape desks rulers walls
ball point pens floors-covered or bare paints-jars,
plastic markers paint brushes paper fasteners,
paper door pointers books chalkboard doorknob
light bulbs, globe lightswitch chalk bulletin boards
pencils closets sink-faucets tacks paper clips
radio t.v. clock tape recorder phonograph paste
glue brush scissors radiators thermostat

3. How could you group them?
   a. Categories - Living, nonliving
   b. Shapes, sizes, softness, hardness, durability, length, weight, height, use.
   c. Items made from wood; items made from metals; items made from We don't know.

4. Group Selection
Level I. grades K-2 list b, list c.
Level II grades 3-6 list c, list a.
Level III grades 7-12 list a, list c.

IV. SHAPE OF THE INFORMATION

1. Finding out the history of a pencil through a reverse Flow Chart. Did pencils always look like this?

2. Break pencil lengthwise. Examine the contents - wood graphite. Discuss the sources of wood, graphite. Discuss the manufacturing of wood into pencils and graphite into lead.

3. Other things in the room that came from trees. Discuss each item to the manufactured product as they know it.

4. Vocabulary enrichment - see attached sheet.

5. Resources for finding out - see bibliography.

6. Let's look at the school building. What Science Learnings do we discover with children.

   bricks fire alarm system water supply concrete
   doors bell system heating system telephones
   windows stairs lights floors elevators classrooms
   gym offices lunchroom counters
   serving items sink rooms garbage refrigerators
   stoves food supply roaches toilets boiler room
   furnace valves walks oil coal ashes pipes
   storage rooms cleaning fluids rags pails mops
   waxers paints brushes brooms shovels machines
   gloves rubber and plastic items

7. Reasoning and Finding Our Flow Chart

   1. How was our building put together?

      Elicit - land space, excavation, basement
      Architecht's design - blueprint
      Materials - dynamite, concrete, cement, wood, bricks, steel girders, plumbing for the heating, toilets and water, electrical system for bells, telephones, fire alarms, refrigeration
      Machines - cranes, pneumatic drills, cement mixers
      Tools/Materials - screws, hammers, saws, bolts, nuts, nails etc.

   2. How is our building heated?

   3. How is our room heated?

   4. What side of the building is our room on?

   5. Does it make a difference which side of the building our room is on, on a hot day, a windy day?

   6. Where is the coldest part of the room? When? Why?

7. Where is the warmest part of the room? Why? When?

8. When is the coldest (warmest) part of the day in our room?

9. What and where is the thermostat?

10. How are the halls heated?

11. What happens when we open the classroom (the school entrance door, the window)? Why?

12. Where does the heat come from?

13. What is the the radiators?

14. What is in the pipes?

15. Where does the water go in the pipes?

16. Resources for finding out:

    A. Trip to the boiler room for a conference with the custodial engineer and the fireman.

    B. See bibliography.

17. Let's look at, in, and around the school yard. What Science Learnings do we discover with children? Your yard might look like this --

    cement pavement raised areas cracks holes
    sidewalk curbing drains sewers tree(s) soil
    gravel fence paper broken glass weeds soda cans
    basketball rims animal signs playground - rubber mats
    swings benches monkey bars see saw cement wall

    Can our school yard disappear? How? Why?

    Reasoning Flow Chart:

    1. What did we see?
    2. How did it happen?
    3. Cement pavement - many cracks, many holes, grass, wood clumps.
    4. Fence - broken rusty, sagging, painted
    5. Basketball rims - sagging, rusty, old board
    6. Sewers, drain holes - covered with collection of string, soil, plastic paper, debris
    7. What forces have caused this to happen? Weather - how? What are the signs of erosin? oxidation? expansion? stopped up sewers? man and animal use?

    Resources for explanations - see bibliography.

18. Let's look at a vacant lot. What Science Learnings do we discover with children?

Your vacant lot may be: next to a school, near apartment buildings, near factories. It might have --

soil paper plastic in many forms and shapes pipes
wires weeds grass clumps tree roots twigs leaves
in stages of decay larva insect shells pieces of bark
animal leavings feathers rags construction material
pieces of furniture car pieces stones rocks

With a collection like this, what should our flow chart look like?

1. Effects of weather on debris.
2. Stages of oxidation.
3. Signs of erosion, streambeds, gullies.
4. Soil content.
5. Seed dispersal.
6. Stages of decay: disintegration of some materials - twigs, leaves, paper, rags, wood.
7. Which things found their way to the lot by way of man? by nature?
8. Examining the tree - alive? dead? root exposure?
9. Make a class collection board for further study.

Resources - see Bibliography

19. Let's look at your school neighborhood. What Science Learnings do we discover with children?

Your school neighborhood can perhaps be one of the most exciting places to take a walk in. The walk may be just the school block area, or it may be several blocks. It may have apartment buildings, homes, factories, stores, vacant lots, junk yards, etc. Whatever it has, have fun. The following is a list of some of the possibilities that might lead to fascinating Science Learnings for you and your class.

PLACE	AWARENESS	LEARNING
Apartment Bldgs.	structure, new, old architectural design, size, entrances, window mail boxes, plants, trees soil, gutters, steps, fences, railings, lights	materials in the building, cement, metals, brick, iron, types of glass, type/size of trees, soil, weeds, flowers.
Private Homes	structure, new, old, yard, trees, sidewalk, entrance, plants, shrubs, windows, fence, mailbox, driveway, garage, chimney, squirrels, lights, roofs, drains, animals	wood, brick, fieldstone, deterioration, oxidation, car exhaust, fumes effect, kinds of trees, shrubs, debris, toys, slate, asbestos, tiles, copper, aluminum

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PLACE	AWARENESS	LEARNING
Animals	strays, pets, birds, cats, dogs, pigeons, starlings, chicadees, blue jays.	strays - condition, physical appearance pets - physical condition birds - winter, names, similarities, differences, year around, why?
Sidewalk/ Street	elevations, cracks, holes, asphalt, cobblestone,grass/weed clumps, debris, manhole covers, steam, telephone wires, drains, repairs, fire hydrants, meters, lights, alarm boxes, mail boxes, signs, trash baskets, tire marks.	signs of erosion, manholes - property of which utility co., sign of expansion, stones, rocks, type of soil mixture, metal, paint, friction, electricity, water.
Automobiles Taxis Trucks	metal, paint,noise, exhaust, meters, new, old, accident, food supplies, utilities, storage, refrigeration, garbage cleaning.	manufacturing of, operation of, oxidation, odors, sounds - alike, different, fuel.
Bakery	wholesale, chain, home service, single owner, products.	production, odors, colors, taste, heat.
Bank	Building - old, new, metal, doors, burglar alarm,machines, money, paper, pens.	oxidation, electricity, construction materials, marble stone wear metal - money, trimmings, ball point pens.
Construction and Repair	brick layer, cement mixer, carpenter, plumber, electrician, crane operation, foundation, drills, girdes, elevators, road blocks, water	making of bricks, cement - ready made, wood - types, pipes - metals, wiring, cables, air pressure, water supply, photograph - note progress
Butcher, Meat/Fish	kinds of meat, machinery storage, refrigeration, counters, scales	meat sources, metals, electricity, gas,ice.
Candy Factories	kinds of candy, building, machinery	materials for the final product, odors, paper, taste, feel.

PLACE	AWARENESS	LEARNING
Candy Stores	varieties of candy, gum, ice cream, tobacco goods, paper goods, canned products, soda fountain	sources for the various items sold - from the raw product to you, refrigeration, electricity, dry gas.
Cemetary Funeral Home	tombstones, iron fence, shrubs, casket, building, trees, soil, flowers, trees.	oxidation, plant life, wood, metal, embalming fluid, marble, tools, metal plaques.
Department Stores	building, old, new, contents - clothes, furniture, drugs, furnishings, elevators, food, toilets, lights, fixtures, telephones, floors, escalators	which products are manmade, operation of moving items, utility companies, from the source to us, what are the steps?
Dry Cleaner	building arrangement, counters, tickets, markings, vats, presses, fluids, machines	wood, india ink, cleaning fluid content, team source, odors, metal, pipes, electricity, safety.
Gas Station	gasoline pumps, tanks, repair, service, air pump, oil.	source of gasoline, types of oil, operation of air pumps, lifts, metal, pollution, dangers.
Florist	flowers, soil, pots, string, paper, sticks.	flower souces - greenhouses, seeds, bulbs, etc. natural wood, refrigeration, water, manmade, clay, plastic.
Hardware	contents unlimited supplier	metal kinds of items wood kind of items plastic kind of items glass kind of items paint kind of items, etc.
Hospital	food, medicine, laundry, plumbing, electricity	sources, sterilization, metals, plastics, fluids
Hotels	elevators, lights, doors, bells, furniture, rugs, heating, air conditioning	wood, metals, electricity, plastics, plumbing, natural and manmade products.
Junk Yard	Use your imagination	
Library	building, old, new, books, paper, suppliers, furniture.	metals, wood, preservatives

PLACE	AWARENESS	LEARNING
Locksmith	keys	metals, machines, tools, filing.
Museums	building, old, new, collections	enclosures, preservatives, aging, restoration
Newspaper Plant	ink, paper, machines	ink source, paper source, metals, electricity
Music Store	instruments, music	how made - wood, metal, sounds, paper, ink printing
People	be observant, time of day, kind of weather, numbers seen, types seen, height, weight, size, clothing, skin.	breathing, movement, health - general appearance, eyes
Radio/T.V. Appliance Stores	unlimited varieties	metals, glass, woods, plastic
Theatres/ Movies	furniture, floor, film, vendors, entrances, projector screen.	wood, metal, celluloid, plastics
Upholster	furniture, material, tools, coils, string,	wood, metal, natural, manmade materials
Carpet Stores	rugs, tiles, linoleum, vinyl.	texture, man-made, natural adhesives, foams, dyes.
Pawn Shop	have fun, collectors, jewelbox	metals, woods, man-made, sounds, odors, oxidation
Liquor Store Bars/Pubs	bottles of wines, rye, bourbon, scotch, vodka, rum, beer	grains used, process glass, paper, metal
Policeman Fireman Metermaid	uniforms, badges, equipment	natural or manmade materials, wood, metal, rubber, chemicals
Laundry - Head, Automatic	machines, iron, dryers, detergents, starches, bleaches, water tray	metals, gas, water, slime content, chemical makeup of washing aids, clothes - natural or manmade fabrics.
Supermarket	Have fun	categorize for Science Learnings.

And if you and your children should happen to look up and around while walking - Did you see:

1. Birds? What were they?
2. Airplanes? What did you notice? hear?
3. Helicopters? What did you notice? hear?
4. Air? Was it cold? windy? wet? dry? thick? dusty?
5. Clouds/Lack of? color? movement? shape?
6. Smoke? thick? black, slow rising? light, gray brown, fast rising smoke particles settling? source?
7. Statues? oxidation? animal signs?

Vocabulary

adhesives
air pressure
architect
bleach
blowers
blue print
bricks
celluloid
cement
clumps
concrete
counters
debris
decay
detergent
dispersion
drainage
durability
elevators
enclosures

erosion
exhaust
expansion
foam
forces
friction
girders
graphite
hardwood
history
iron
lead
linoleum
manhole manufacturing
manufacturing
metal
meter
ore
oxidation

pavement
plastic
plywood
pneunatic drills
pollution
preservatives
restoration
rusty
slime
softwood
soil
sprinkler
starch
sterilization
storage
texture
thermostat
tiles
upholstery
vinyl

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SUGGESTED FILM LIST

Bureau of Audio-Visual Instruction
Office of Instructional Services

Classroom Service Dept.
Modern Talking Picture Service
2323 New Hyde Park Road
New Hyde Park, L.I., N. Y. 11040

New York Telephone Films
% Association Sterling Films
43 West 61st Street
New York, N.Y. 10023

General Motors Corporation
Public Relations Staff-Film Library
General Motors Bldg.
Detroit, Michigan 48202

Shell Film Library
450 North Meridan Street
Indianapolis, Indiana 46204

FOR RETURN POSTAGE ALL FILMS
ARE LOANED FREE OF CHARGE
SEND FOR CATALOGS

FREE EXHIBITS AND CLASSROOM
DEMONSTRATION

Supervisor of Circulating
Department of Education
American Museum of Natural
History
Central Park West at 79 St.
New York, New York 10024

John V. Markey
Education Representative
New York Telephone Company
10 Columbus Circle
New York, N.Y. 10019
(212-394-3725)

MARINE WORKSHOP ACTIVITY BOOKLET

By: Norman Skliar

Seashore Activites

1. Weather Conditions

Air Temp: ________

Wind: speed ________

direction ______

Barometer: ________

Sky: ______________

Humidity: ________

2. High-tide Study

An incoming tide continually washes drifting material higher and higher onto the beach, leaving a long line or mark.

Most of this material is usually seaweed, sea shells, driftwood, some skeletal remains, and other debris.

Comb through the material and record all of your findings. Record all LIVING THINGS on the Seashore Ecology sheeet.

3. Seashore Ecology Study

Record all living things found in your total day's activities below. Complete the chart for each living thing.

Living Thing	Zone	Habitat	Adaptation (food, protection, reproduction)

4. Temperature Study - microclimates

Air Temperature

___ at dune, marsh or rocky area

___ at upper beach

___ at lower beach

___ at north side of boulder or wall

___ at south side of boulder or wall

Sand Temperature:

___ dry surface ___ dry, 6" below surface

___ wet surface

Water Temperature: Other:

___ at surface

___ 1 foot below surface

5. Under Rocks, Stones, Logs, etc. Study

In order for animals to protect themselves from enemies, sunlight, and wind they often burrow beneath some object.

Overturn some of the above objects. Carefully OBSERVE, and results. (note: re-place objects)

6. Plankton Study

These tiny,and often microscopic animals (plants also) can be collected in shallow water.

Wade out to knee depth. Continually move the plankton net through the water. Make certain that the net is open and clear of sea weed, and that the collecting tube is below the water surface.

After "working" the net for a least three minutes, carefully lift the collecting tube to the light and OBSERVE! YOU SHOULD SEE MANY OF THE LARGER PLANKTONIC FORMS.

Microscopic Study -- Stereo Microscope

For a more thorough and interesting study, prepare some slides for the stereo microscope. (conducted at upper beach station)

Record type and number of animals. Draw or sketch the most numerous type.

7. Pilings, Docks and Large Rock Study

The above objects are frequently covered with a wide variety of interesting marine life.

Look above and below the water level. Collections may be made by picking, prying or using a small net...observe, collect, and record your findings.

8. Seine Net Study

This is perhaps the best single piece of equipment for collecting animals at the seashore waters.

Specimens caught are often varied and numerous. Therefore, practice conservation. Collect only the animals that you wish to study. OBSERVE - COLLECT - STUDY and RECORD all findings.

9. Tide Pool Study

Try to locate a large tide pool. Some pools may contain a wide variety of marine life. In addition to the specimens which may be collected, the tide pool offers an unusual opportunity to closely examine the unique adaptations of each of the animals.

Sit around the pool and observe how the animals feed, move about and sense their environment. Look carefully, as some animals are masters of camouflage. RECORD all living things.

10. Bird Study

These animals are also part of the seashore ecology. Observe and record the different types of birds found.

Look for tracks, nests, and remains of birds along the beach and dune area.

11. Tide Study

Mark the point where the water meets the land. Note time ____.

Continue to mark the tide line at hourly intervals. Measure the distance that the tide changes.

1. _____ hour
2. _____ hour ____ distance of fall/rise
3. _____ hour ____ distance of fall/rise

12. Thoughts - Feelings - Impressions

During a quiet period, try to observe as much of the seashore as possible. This, together with your other activities should enable you to write down some of your thoughts, feelings, or impressions on the Ecology of the Seashore.

ANIMALS

It is desirable to have a number of animals in the classroom during the course of the school year. However, there are a few considerations which should be observed. It would be wise to check first with a local Conservation Department representative to see if it is legal to keep certain animals in the classroom, particularly a large native mammal.

The care of animals housed in the classroom cannot be ignored. Some animals require daily attention which others may do very well with little or no care. For best results they should be kept in a sanitary condition. Uneaten food should not be allowed to remain in the container. In addition to teaching children about the animals themselves, they can learn about kindness and the care of animals at the same time.

An animal should be released or taken home after it has served its purpose in the classroom. Do not release it indiscriminately. The animal should be returned to its native habitat where it is adapted for survival.

Birds have been purposely omitted from the chart since it is illegal to confine most varieties. Domestic birds can be kept for a short time provided arrangements can be made with its owner.

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ANIMAL	TYPE OF CONTAINER	TEMPERATURE RANGE °F	SUGGESTIONS FOR FOOD	SUGGESTIONS AND REMARKS
Various protozoa	Large-mouth gallon jar	55° - 75°	Timothy hay Boiled wheat	
Earthworms	Tub 18" deep filled with leaves, dirt grass, etc. Keep covered.	Cool, dark place such as basement	Mashed potatoes lettuce, coffee grounds	Do not overstock the container. Keep moist.
Ants	Ant home. Two pieces of glass, frame with wood, quart or half gallon jar for carpenter ants.	Room	Honey or sugar water on bits of sponge and mincer insects	Must not become too dry.
Fruit flies (Drosophila)	Quart milk bottles with cotton stoppers	Room	Mixture of crushed banana and grapes, and a drop of fresh yeast dissolved in water	
Aquatic snails	Balanced aquarium, quart jar or a pan of water		Lettuce or green vegetation of aquarium	Feeding lettuce prevents snails eating aquarium plants.
Land snails	Woodland terrarium	Room	Lettuce	
Fishes	Balanced aquarium	Varies with species. trophical fish usually 75° or over.	Some prepared foods. Alternate with living forms such as bits of earthworms or pond dippings for native fish	Overfeeding is more common than underfeeding. Be sure all food is eaten each time.
Large salamanders, spotted Jefferson's, Marbied (Ambystoma)	Semiaquatic	Room	Chopped earthworms, fresh fish and ground beef	

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Mudpuppy (Necturus) Hellbender (Cryptobeaneus)	Running water tank	Room	Small fishes, worms, crayfish	
Newts (Salamanders)	Semiaquatic for land forms (Red eft.) Balances aquarium for aquatic forms	Room	Small insects, earthworms, bits of beef	will take food only when it wants
Spiders	Small terrarium or insect cage	Room, or placed outside window	Flies	Include a branched twig
Crayfish	Semiaquatic or balance aquarium	Room	Earthworms, fresh meat	Provide rocks or other hiding places.
Walking sticks	Freshly sprouted grass in a screen cage or cover a tank	Room or slightly warmer	Freshly grown grass	
Praying Mantis	Glass or coffee can insect cage with dry grass and branches in it.	Room or slightly warmer	Living insects, bits of fresh liver	Keep out of direct sunlight
Cockroaches	Terrarium or glass jar with 1" sawdust in bottom	Prefer higher er than room temperature up to 90°	Milk-soaked bread, fresh fruit, lettuce, plenty of water	
Crickets	Terrarium or glass jar with 1" moist soil or excelsior in bottom	Room	Milk-soaked bread, fresh fruit or bits of meat. Sprinkle bottom with water daily.	Provide strips of paper toweling for hiding places
Mealworm (Tenebrio)	Large mouth gallon jar or oatmeal container. Add 4" bran or oatmeal flakes and a few crumblad papers	75° - 90°	Bran or oatmeal, with addition of lettuce occasionally. Also apple slices and banana peels.	Larvae are good source for fish and amphibians, amphibians, some reptiles

Moth and Butterflies (from cocoons or eggs)	Terrarium, preferably with some green vegetation growing in it to keep humidity up or coffee can insect cage	75° - 90° Cocoons can be kept out of doors all winter in coffee can insect cage	Food varies with species: Monarch butterfly larvae feed on milkweed leaves	Must have high humidity, or wings will not expand properly.
Aquatic insects	Balanced aquarium large moth gallon jar or shallow pan with pont water	Room	Tiny animals, plant life, bits of meat.	Provide block of wood or stone for emergence of winged adult insects and a few stones for hiding places.
Toads	Woodland or Semi-aquatic	Room	Mealworms, flies and other insects	Will eat only living food which moves
Tree frog (Spring peepers and belated species	Woodland or semiaquatic	Room	Small flies, other soft-bodied insects or small worms	
Other frogs (Meadow, green pickerel, wood)	Semiaquatic	Room	Insects, preferably flies	Separate pickerel frogs from other species
Bull-frog	Semiaquatic	Room	Small frogs, large insects, small fish	Difficult to keep for long due to voracious appetite
Tadpoles and eggs	Semiaquatic	Room	Pond scum or lettuce for tadpoles and animals in pond water or salt water	Keep in well cool place, projecting object for changing tadpoles.
Turtles	Land turtles woodland; others semi-aquatic	Room or warmer	Ant eggs, fresh meat, tadpoles, earthworms and some fruits and vegetables	Landforms are largely vegetarians but will eat a variety of animal matter, some prefer to eat under water

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Lizards	For most species a desert terrarium; many prefer dry woodland	Room or warmer	Meal worms, ants cockroaches, sow bugs and other insects. Sprinkle water on glass or plants in the terrarium.	Must be rather warm to feed. Sprayer used for watering
Snakes	Woodland or desert terrarium with screened cover	Room	Mice, frogs, earthworms, eggs, etc. depending on the species	Provide shelter for snakes to hide. Also rocks for climbing over and small container of water
Mice and Rats -- (Labor-	Cages of wire screen with sanitary bottom drinking and food containers	Room	Prepared balanced diets supplemented if desired with table scraps	Avoid drafts, as colds are the most common ailment.
White-footed or deer mice	Same as Above	Room	Apple, peanut butter, unsalted nuts, vegetables, stale bread	Can be released at any time of the year
Guinea pigs	Same as for rats and mice	**Room**	Prepared foods supplemented by raw vegetables	
Hamsters	Same as for Guinea Pigs	Room	Dog biscuits or pellets, apples apples, carrots, corn.	Provide a nesting box in the cage
Larger mammals	Cage or other suitable container for comfort	Room in most cases	Food will vary with the animal	Check Conservation laws keep only as long as necessary

ART

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ART IN NATURE

By: Barbara Ashbee, Mary Jane Blasi,
Mary Cleland, Susan Ploss

Art is nature. Nature is art. The role of the teacher is to make the child totally aware of his world. Art experiences can easily be coordinated with the outdoors, and these experiences will be of a depth far beyond the simple elusions. Creativity is the feeling and the excitement, which comes from total awareness. Inspiration comes from everything, whether it be a rock, tree, flower, or even a brick building, or a neatly laid out city square.

The child is a wonderful resource of creative energy and we must help that child to come to use his potential to its fullest degree through the provision of opportunity, materials and equipment which in turn bring about circumstances and ideas. The end product is not of great importance, its the experience and satisfaction gained from the experience which yields a happier more thoughtful child.

Activities should be centered around varied probable settings, their goal to help the child sense, wonder, understand, and desire to sense some type of beauty using nature as inspiration. Our opportunities should be concerned with encouragement, awareness, challenge, stimulation, individual expression, enjoyment and appreciation.

The limitations for art in nature would include the age of the child, his maturity, his motor control, and his environmental experiences. Various projects can be used to meet the needs of children and their varied abilities. If the teacher displays an enthusiastic attitude the children will make great efforts to do the best they can.

Art in nature could be just picking up a small piece of wood, feeling it, looking at it closely, and imaging about the different forms it has, or lines it could have, or even shapes within it. A child's curiosity and esthetic feelings need to be kindled, and brought into a burning blaze, so mankind will not become Charlie Chaplin wind-up men. Thus pigeon-holed bored adults will be somewhat fewer through creative art and caring.

The establishment of a curriculum in art includes a flexible program which can be used by all grade levels, K-12. The basic elements of art are major to all types of projects. These elements are building blocks or a vehicle to an experience.

The following curriculum includes the elements of art stated as objectives.

1. In nature the child can see all the values, intensity, and complements of colors. (The harmony of life.)

2. Two dimensional surfaces in the world will be used to stimulate the child's imagination.

3. Through nature the child can see distance and realize that it is only an illusion on his paper.

4. Line can express all the sensitivity and capabilities of the child. A line can take many forms, either two dimensional or three.

5. The children will use three dimensional uses or objects in nature as a sculptural medium. The child will sense volume.

6. Through observation the child can become aware of the lightness and darkness of objects. The variety of the simgular will be noted.

7. The student will become aware of the texture and images within objects.

The following list of creative art activities through the out of doors can be made more difficult or more simplified according to the needs of the children and the teacher. Suggestions for gluing, including Elmers, rubber cement, and epoxy.

ACTIVITIES

Yarn stringing in nature (shapes and patterns)

Taking a small picture and building with things gathered from the out doors

Use of foil to rub and feel textures and patterns.

Listening to the wind rustle through the trees and painting the feeling you have.

Painting feelings when sitting by some type of water.

Decoupage of wood and bark

Spotting shapes in building stones

Building fine stick towers and houses

Use of fallen birch bark for paper.

Use of driftwood for decorating.

Observation of leaf prints on the sidewalk.

Shapes in bridges.

Rebuilding old fallen down buildings through imagination.

Things which come from nature - drawing what you imagine it to look like.

Textural rubbings of fire escapes, old buildings, and others.

Collecting things from an environment and arranging it between clear plastic contact paper.

Take a walk and feel textures and listen to sounds. Come back and illustrate feelings and thoughts.

Collect sand, dirt and mud. Use the mud to paint with. Draw pictures in the sand and dirt.

Find all the shades of colors in the buildings and houses.

Notice silhouettes of clouds and tall buildings.

Design reflections of the sun from windows.

Examine shapes and textures in roads and other things built by man.

Examine tree textures and patterns and use for design illustrations.

Stiching patterns can be borrowed from buildings and natures' wonders

Nature boxes from some basic box and decorated would be good gifts.

-pine cones - puppets, owls (owl heads cut from small piece of birch bark and glued to cone) turkeys (heads and necks carved from small twigs)

-pressed flora - collect and press plant stems, leaves and flowers until dry. Glue on white paper.

-sand art - soak in vegetable dye of desired color. Remove sand from solution and dry before using. Draw desired design on wood or heavy cardboard. Saturate string with glue. Place on drawn lines and press firmly. Let dry. Use small brush to spread glue freely. Pour colored sand into stringed areas. Press sand into glue and let dry.

-leaf scapes - use many different leaves. Press until dry. Place on sheet of construction paper for design. Hold leaves in place with pins. Lightly spray with various colors.

-paint pictures with clay -

-colors - Fall of the year, sponge painting. Discovering different colors on the same tree. Painting outside. How many different shades of green can one find outside?

-discover colors in clay

-mud painting on rocks

-making ripples in stream with hand or foot

-imagining things in the shapes of clouds

-crayon rubbings of leaves

-gravestone rubbings

-collages - leaves, pebbles, seeds. Burlap provides a good background for some.

-closing eyes and touching stones, bark, etc. to be more aware of texture.

-terrariums

-barnside painting

-use of lumberyard materials

-sunlight - how does it make you feel?

-weaving with reeds, cattails

-make animals out of stones

-pull apart pine cones to fill in designs drawn on paper.

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Take the children into a field and have them take their shoes off. Can you see the world through your feet?

When is night? Feel the trees touching the sky? Look for the night dragon creeping across the sky.

Are you aware of the many varied songs in a stream? What moods do you get from the different tones?

Have students draw objects from nature; toad stools, branches, pine cones, etc. illuminated by candle light.

Have the children draw sea shells as they are. Then turn them into creatures and place them into an environment.

What would the world look like if you were a tree, a rock, a babbling brook, a hawk or even a tiny ant?

Take a moss covered piece of bark and place it under a dissecting scope. What kind of life can you imagine? Can you see elves and fairies looking at you? What do you see?

In a wooded area is the possibility of a D line design.

Have you ever thought of the shape of a leafy branch being made by the sky.

Have the students write poetry from observations made in nature. Illustrate them and make a class book for the library.

What's a cloud? Is it just moisture all lumped together or is it magically changing forms and shapes.

Observe the shapes fallen leaves make on the sidewalk.

Study knot holes in a piece of wood or lines on a sidewalk. From these, abstract designs can be found or imaginary creatures.

Rubbings: of bricks, tree trunks, leaves, gravestones, rocks.

Printing using: leaves, potato, Jack in the Pulpit Root, pine cones.

Do an ink sketch using a branch or feather.

Banner using birch bark and yarn

Use a branch as a weaving loom.

Make a collage from things collected from nature.

Make creatures out of stones, twigs, nuts, and pine cones.

What mood would you get if you used a branch, a flower, or a feather for a brush?

Gather owl pellets, disect them, and have the children discuss what type of animal it was. Then draw the skulls and fragments found. They could also sketch what the original animal looked like.

Sand casting: add to your design with small stones and sticks.

Sketch 10 different types of trees. Note the different structure in each.

What shapes do dead trees have? Are they stronger or weaker than live tree shapes? What parts are missing? What are left?

How many shades of green are in one square foot of foliage? Reproduce them in a monochromatic picture.

Using staghorn sumac, make napkin rings and darning eggs.

Have you ever seen colors clash in a natural setting?

Stones can be an imagination stretcher and also a marvelous painting surface.

Use natural dyes as paint pigments. These could also be used to dye cloth or yarn. Examples: Tan - coffee; Purple - milk weed flower; Gold - onion; brown - butternut; dark brown - black walnut; purple - red cabbage; yellow brown - tea.

Magic pictures using sour milk, lemon juice, vinegar. Draw the picture than go over it with a warm iron. Clorox on colored paper is an interesting media.

Melt wax. Drop a spoon full in cold water and describe the shape. Bayberry wax and beeswax can be used.

Collect soft stones and mix with oil. Produce type of ink.

Cattail torches, a piece of glass, paper and grease makes an unusual media for printing.

Check a muddy bank for animal tracks. Have the kids write a story or draw a picture about what happened at this spot.

Using only things in nature have the children describe the colors.

Make bark, seed, pine cones, cracked dyed egg shell mosaics.

Spray a spider's web with white paint; then press it between two sheets of black paper.

Study life for beauty, movement, anger, simplicity, and all aspects of human emotion.

Tree weaving - using flexible branches, string and various long grasses (cattails) for the weaving.

Terrariums - use different colored mushrooms, lichens, and mosses, Partridge berries and small ferns.

Drift wood designs - drift wood comes in many sizes, shapes and textures which can be collected for use as models for designs, wall hangings or pleasing decorations out of doors.

Clay pots - many areas in the north country have clay deposits which yield clay clean enough to be used in its natural state, without washing. Make the pot, which the children might decorate by pressing hemlock branches into the partially dry pot or incising the pot with a sharp stick to form a design. The pot might be used as a bird feeder or planter and can be hung from the tree by a macramed basket holder.

Woodland and field plaques - Materials may be found at the site of old saw mills.

1. Find old board- watching for shape,texture (rough or weathered smooth), color.

2. Dried Queen Anne's lace - milkweed pods on stick-tezel-bittersweet pinecones and any other dried seeds or flowers that might be available.

3. Make arrangement on wood and fasten with epoxy, elmers or Hyplar.

Paper weights - use small mustard or babyfood jars. Find colorful flowers in the area...liquid plastic or clear glue.

Milk weed pod ornaments for Christmas trees.

Pinecone animals or creatures.

Printing with sticks, pine cones, flowers, feathers

Nut jewelry

Dyes - made from bark, nuts and flower blossoms

Painting - use juices from berries;birch bark might be uses as the painting surface.

Basketry and weaving - use firm materials as the warp and flexible materials (cattails, wild grapevines) and the roof.

Rock creatures or paper weights

Pine cone wreaths and center pieces

Pine cone designs - separate pine cone seed covers. Draw design glue different size cone covers to design. Design could be realistic or abstract.

DISCOVERING ART IN THE OUT OF DOORS

by Donald B. Eakins

Guidelines to Discovery - Art Objectives

1. To develop the ability to "see" - to grow in sensitivity and perception

2. To assist children in discovering that art exists in many things, in nature, in work and play, at home and at school

3. To provide guidance in the use of the tools of art as essential to the development of skills, good working habits, and safety

4. To provide full opportunity for creative growth through art experiences which bring personal satisfaction and further develop the natural creativity of children

5. To guide children in the recognition and application of art elements: color, shape, line, texture, form

6. To provide a varied art program with ample opportunity for individual exploration and experimentation

7. To provide for group experiences in which young children can learn to work together

Art is man's visual language. Teaching art is the teaching of others to understand and use this visual language. And, though spoken language seems to be natural to man it must be learned by each generation, so, too, the natural visual language must be learned. To create a deep understanding of art in children, the teacher must begin to understand man and his environment.

Children need guidance in how to take advantage of natures natural surroundings to bring about aesthetic awareness. The incorporation of all the senses into a visual learning situation provides the child with a broader base for understanding. Each sense allows the child to relate to the subject in a different way. Although he may not know the function or be familiar with the subject visually, the tactile quality may well serve as the starting point for discovery. When a child is working with his senses, the situation he is in is one that fosters imagination, a willingness to try, to express his thoughts and feelings and to share them with others as an idea, an anwer, a thought is rarely incorrect. Every thought and question of the child can be used to make the experience more meaningful for all involved. When teaching visual concepts, it is imperative that we incorporate total sensory awareness. The use of all our senses to clarify, define, explain and perceive will make a far greater impact on the learner.

Creativity in any situation is not something which can be specifically taught especially emotionally handicapped youngsters. Their needs are different, and the teacher must relate to and understand these needs, so that their creativity will be allowed to surface and be expressed. This involves a child who can be made to feel free from personal and social inhibitions. It involves an exciting atmosphere where he can be stimulated towards discovery. The teaching of art in the out of doors provides an excellent atmosphere for this type of development. The teacher should not consider the walls of the classroom to be the limits of his duty.

Art is created through action and involvement. We must break away from a traditional and boring approach of "let's draw a tree" or "today we are painting landscapes". We must build towards increased awareness and sensitivity through total discovery. The importance of each subject is magnified through a sensory experience and the visual image becomes clearer to the artist.

What does it feel like? Does it have a smooth or rough texture? How smooth does it feel? Is it as smooth as glass? Does it feel hard or soft? Is it as soft as a pillow? How long is it? How wide is it? We can hold it in our hand. Is it thick or thin? Will it break if we bend it? Does it look heavy or light? Does it fall quickly or does it float gracefully through the air? Does it smell like anything familiar? Will it make a sound if we strike it on the ground? What happens when we pour water over it? Does it look like a leaf? Could it be a leaf? What could we call it? A feather!

What kind of feather is it? We can find this information in our library. What material could we use to draw a picture of our feather? Something soft. What do we have that is soft like the feather? Chalk!

The end product is not of great importance, its the experience and satisfaction gained from the experience which yields a happier more thoughtful child. He understands and appreciates the object in question. He has learned more than just a name for some unfamiliar object. He is now ready to express his feelings visually.

ACTIVITIES

Milk weed birds with toothpick legs

Walnut and pinecone animals or creatures using piano wire

Necklaces made from found objects

Plaster casting of textures found in nature. The first step is lifting the texture using clay. The second step is to pour plaster into a paper collar pressed into the clay

Collages made of twigs and leaves

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Spider's web design. Spray a spider web with white paint; then press it between two sheets of black paper

Modelling with Paris-craft and branches shaped like animals

Group mobile-making using branches and found objects

What's a cloud? Can we find familiar shapes and identify them. We could make our own using cotton on light blue construction paper

Painting with found objects as brushes. What kind of a line will a twig, branch, flower, leaf, bone or feather make

Crayon texture rubbings: Stone, bark leaves, grass, flowers, bricks, shells, feathers and fossils

Weaving with a branch as a loom. Use raffia for the actual weaving

Make creatures out of stones, twigs, nuts and pine cones

Shadow drawings with india ink and twigs on white drawing paper.

Printmaking with found objects and tempera paint. Print designs on old newspapers for emphasis on conservation of our woodlands

Sand painting using tempera paint and dry sand

Puppets made from branches and old socks stuffed with grass. Eyes and other facial features made from acorn caps and seeds

Sponge painting during the fall. Discovering color in nature

Reflections in a stream or puddle can inspire interesting portraits

Painting an old barn wood or bark. What does the texture do to our painting?

Mosaic constructions on masonite using found objects.

Watercolor painting on a rainy afternoon.

Copper and aluminum foil embossing of textures found in the out of doors

Painting feelings experienced while walking barefooted

Building sculptures from twigs using the ground as a base

Stitching designs and patterns can be borrowed from the environment

Spatter painting with leaves, nuts and twigs

Discovering small animals for discussion, examination and drawing. Snakes are excellent subjects for this type of work

ARTS AND CRAFTS FOR OUTDOORS

by Rose Weitzman

Arts and crafts is a creative activity found in the school curriculum which should lead the normal or handicapped child to increased awareness of and sensitivity to the world around him. The role of the teacher is to make the child totally aware of his world. Through arts and crafts a child develops the basic concepts of shape, color, texture, symmetry, designs and patterns, movements and distance perception.

A successful arts and crafts program conducted in the out of doors requires neither great talent nor vast quantities of materials. However, it does require willingness and enthusiasm for learning with the students. It also requires a willingness to experiement and the courage to answer a question with "I don't know, but let's find out." This type of program works because it can be modified to fit any setting. It is stimulating because both students and teacher have the opportunity to develop new ideas through increasing awareness of the world around them, thus fostering personal growth in many new and exciting directions and concepts.

By placing the art experiences in the out of doors the methods used for developing these concepts increase infinitely. In addition, the child is surrounded by hundreds of stimuli which he can learn to discover and appreciate in new and different ways. Furthermore, the use of the out of doors may serve as positive reinforcement to any or all of the concepts already learned in the classroom. The disturbed child also gains a great deal on a personal level from this type of experience, simply because his project is totally his from start to finish. An indigenous program gives the student a chance to create from what he finds in his environment, rather than waiting for an environment to be placed in his hands. Most schools, whether urban or rural, possess some of the basic things necessary for an indigneous program.

Creativity in any situation is not something which can be specifically taught, especially emotionally handicapped youngsters. Their needs are different, and the teacher must relate to and understand these needs, so that their creativity will be allowed to surface and be expressed. This involves a child who can be made to feel free from personal and social inhibitions--and also an exciting atmosphere where he can be stimulated towards discovery. This type of creative learning should let the student explore his own potential with confidence and originality while developing a unique sensitive approach to everything around him.

Creativity generates feeling and excitement which comes from total awareness and involvement. Inspiration can come from any intrinsic material whether it be a rock, tree, flower,broken bottles, tossed cans, street signs, or even a brick building or a city street. This out of doors environment naturally frees the imagination and the emotions, the first and most important step before one goes on to express the excitement and wonder he feels.

Activities should be centered around natural settings, their goal to help the child sense, wonder, understand and desire to sense some type of beauty using nature as an inspiration. Art is nature, nature is art. Our opportunities should be concerned with encouragement, awareness, challenge, stimulation, individual expression enjoyment and appreciation.

The limitations for art in the out of doors include the age of the child, his maturity,his motor control, and his environmental experiences. Various projects can be used to meet the needs of emotionally handicapped children and their varied abilities. If the teacher displays an enthusiastic attitude, the children will make great efforts to do the best they can. The teacher should find himself in a helping relationship to the student, instructing specific skills as they are needed. This not only facilitates the learning process but fosters a respect for ability between teacher and student while developing cohesiveness in the class.

Art in nature could be just picking up a small piece of wood, feeling it, looking at it closely, and imagining about the different forms it has or lines it could have, or even shapes within it. The child is a wonderful resource of creative energy and we must help that child use his potential to its fullest degree by providing opportunities, materials, and natural equipment which in turn bring about circumstances and develops ideas. The end product is not of great importance. It is the experience and satisfaction gained from the experience which yields a happier, and more thoughtful child. Suggested activities are listed below:

ACTIVITIES

Building fine stick houses and streets from observation and imagination

Collage - collecting things from an environment and arranging it on cardboard or between clear plastic contact paper.

Study shapes, color and texture of sidewalks, asphalt, gravel.

Distance perception of telephone poles, basketball, hoops, flag poles

Collages - leaves, pebbles, seeds, bottle caps - burlap provides a good background for some.

Lettering of discarded cans, street signs.

Traffic light mobiles

What would the world look like if you were a traffic light, a tree, a rock, a hawk or even a tiny ant.

Study a knot hole in a piece of wood or lines on a sidewalk. From these, abstract designs can be found or imaginary creatures.

Rubbings (crayon) of bricks, tree trunks,gravestones, rocks, metal grills, screens

Make costume jewelry out of bottle caps, shells, cardboard, nuts

Mosaics out of crushed bark, seed, pine cones, cracked dyed egg shells, pebbles

Relief pictures

Roller printing from various forms of rollers found (cans, hair curlers, etc.). Put yarn around roller--dip in paint--print.

Mobiles - from tree branches -colored construction paper, scissors, paste and string of thread.

Rock creatures or paper weights.

Gadget printing - assorted household objects, bottle caps, screws, plugs, sticks, pine cones.

Texture prints - cut up and arrange and glue materials on cardboard. Roll paint on your texture design and lay a paper over it and rub with hand.

Clay mold - use clay to make mold out of bark - dip into ink or paint-- make various designs or prints on construction paper.

Bark Collage - use clay on bark - stick other materials into clay (pipe cleaners, leaves, moss, branches).

Collage with Gesso-primer white. Place various materials on cardboard, i.e., string, rope, buttons,etc. Put on 2 - 3 coats of gesso.

Antiqued bottle or can - cover with glue - place pieces of clay to create sculpture effect. Cover with crushed aluminum foil to show shape of bottle with clay. Paint with black tempra. Cover with polymer.

Tissue paper bottles -- glue bottle with paper toweling strips. Various tissue paper is applied next dipped into liquid starch. Apply two coats of shellac when dry.

ARTS AND CRAFTS - A NECESSITY FOR MEANINGFUL EDUCATION

by Gail Charboneau

It wouldn't surprise any of you if it was said that arts and crafts should be used predominantly for relaxation from academic tasks in the classroom, for supplemental enrichment for children with possible artistic talents, for fine motor training of young children, or to be used as a filler of unwanted time at camps when it rains. It shouldn't come as any surprise because that is precisely the manner in which arts and crafts have been viewed -- in isolation from any program or, at best, as supplemental. Arts and crafts should be an integral part of almost any academic area lending meaning and awareness to didactic pursuits often devoid of meaning to children or adults because these academic areas do not relate to their experiences. In essence, arts and crafts become a necessity in teaching comprehension of vocabulary, reading, spelling, science, language arts, etc. They should be incorporated into every day's curricula.

A brief explanation of what we mean by "arts and crafts" is in order. The most unartistic individual in the world can participate in the arts end of this subject. Art implies that we use various media, paints, papers, glue, etc., used usually by people termed art teachers. Craft implies manipulation or building of skill in handiwork. It is often associated with home hobbies as embroidery, knitting, soap carving, model making,and untold other crafts. In actuality, arts and crafts together means a skillful handling of some object and the addition of artists media to it. This being true, our basis for integrating this area in the classroom is that it must broaden our children's experiential world, improve fine motor skills, stimulate their imagination and creativity and most importantly interest in and motivation toward their subjects. As Betty Ells states, "the use of the out of doors may serve as a positive reinforcement to any or all of the concepts already learned in the classroom."[1]

The following pages give you some how-to-do-it ideas applicable to many class areas.

Bibliography - Note: Many ideas stem from the "Back of the Book" and the back cover of the New York State Conservationist. This excellent magazine has nationwide fame and costs public schools only $1.00 per year for subscription. It should be considered essential reference material for teachers and includes many specific "teacher tips" for the classroom.

1. Nature Crafts; Ellsworth Jaeger, MacMillan & Co., N.Y. 1971.
2. Conservation for Camp and Classroom; Robert D. Bale, 1962
3. The Conservationist, N.Y.S. Dept. of Environmental Conservation, Albany, N.Y. 12201
4. The Foxfire Book; Eliot Wigginton,Doubleday & Co., Inc., Garden City, N.Y. 1972

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[1] Suggestions for Curriculum Enrichment of Arts and Crafts Through Education Approach - Betty Ells, Twin Valleys

Hopefully we can develop an awareness of how much beyond arts and crafts the student is learning in science, vocabulary, spelling, kinesthetic awareness and fine motor training: art, in and of itself, and, of course, utilization of the out of doors. Following are three lessons, hundreds of others may be in various resources. I have tried to select three lessons, each of which has multi-purpose reinforcement, i.e., one that may be useful in almost any academic area. The key to planning any successful lesson is simplicity, brevity, relevance and capacity for immediate success for all participants. Nothing is more meaningful than a task aroused by one's own curiosity! Academic skills take on meaning only when attached to experience. Use the outdoors, your kids will learn more and appreciate the acquisition of new knowledge, and will appreciate a teacher who is willing to carry education to its fullest terms beyond the walls of the classroom. Be daring!

LESSON I - SUNNY DAY

Materials needed: Ozalid or dry paper, sheet of glass,piece of cardboard, masking tape, large jar with screw top, ammonia and paper towel or a sponge piece.

Cover the edges of the glass with masking tape ahead of time. Saturate a small sponge piece with ammonia and place in jar before you go outdoors. It's best if each student, or pair of students, has his own pice of glass and cardboard backing.

Find a leaf, grass blade, reed or almost anything you wish and place it on glass. Behind it place the ozalid paper, glassy side toward glass, place cardboard behind paper to hold it firmly -- hold the unit in sunlight until the paper turns white. Then place paper *unfolded* in jar with ammonia and print will develop.

LESSON II - SUNNY DAY

Materials needed: Blue print paper (medium speed), sheet of glass, masking tape,heavy coardboard, hydrogen peroxide, pan of water (room temperature).

Cover the edges of the glass with masking tape before departing for fields. Place the object (leaf, reeds, grass blades or other fairly thin material) on glass and cover with sheet of blue print paper, *blue side down*, in pan of water. Keep in place until the blue background has developed. Remove from sunlight and place the exposed paper, *blue side down*, in pan of water. Keep in place until the blue background has developed.

Remove print from the water and dry on a flat surface, preferably beneath a weight and between paper towels or blotters to prevent curling.

LESSON III - RAINY DAY

Take your group outside and collect objects that excite curiosity. Spend the amount of time doing this as degree of rain permits. Have each person place his object on a bush or shrub and in essence decorate it. Ask the group to try and remember what the bush looks like. Have each individual remove his own object and return to the classroom.

When you return to the classroom, open options for utilization of the object brought; if an individual wishes to glue it to something firm! Paint it, write about it; create a group bulletin board, write about the outdoor experience and the object that each contributed to the stabile, or utilize special techniques reserved for sunny days with the use of ultra-vilet lamps and follow lessons I and II for sunny day. Any object can be meaningfully integrated with teacher guidance to gain educational objectives.

Rain, snow, etc. need not detract from utilization of the outdoors in craft projects. Almost always, something will arouse the curiosity of the child or teenager and give the creative teacher many avenues to supplement stagnant reading, language arts and English exercises.

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A FEW THOUGHTS ON CREATIVE ARTS AND CRAFTS

By: Douglas Werth

When outdoors, one is impressed with the living motion in nature. Grassy fields sway in the wind, streams gurgle along their way, and all around new flowers are springing up amidst the remains of their forest ancestors. It is a flowing, everchanging proces that is exciting to behold and refreshing to encounter. Ideas are like that also: never static, but flowing here and there embracing our perceptions and blossoming amid our rigidity. And just as organisms are created to fight in mass for their very existence until they eventually yield, so ideas often scream. "Look at me, see how wonderful I am!" in their bid for recognition and life. Nature selectively prunes and favors some species, and similarly our minds will either allow these ideas to flourish or perish. Sometimes it is not entirely our choice.

Creativity in any situation is not something which can be specifically taught, but rather something which is allowed to surface and be expressed. This involves a student free from personal and social inhibitions and exciting atmosphere where he will be stimulated toward discovery. This type of creative learning lets the student intrinsically explore his own potential with confidence and originality, while developing a unique sensitive approach to everything around him.

In the outdoors, the student is immediately embraced by the dynamic and flowing process all around him. Clouds and forests, brooks and flowers have always drawn a deep relaxed breath of exhileration, while at the same time challenging one to explore just a bit further. This type of environment naturally frees the imagination and the emotions, the first and most important step before one goes on to express the excitement and wonder he feels.

When presented with an opportunity to create, a similar type of freedom and excitement has to be felt before the experience can become fulfilling and meaningful. Different types of "freeing exercises will encourage discovery, overcome inhibitions and direct towards originality."[1] To do this the class is initially structured to:

1. set some controls to give a feeling of personal security and group cohesiveness. "Together we are all going to ... with some of these materials." A general range of student work displayed throughout the room facilitates the general working climate and helps the whole creative mood.

2. present a simple on-the-spot-original demonstration of the material to be used.

3. have each student's first efforts be immediately successful and attractively displayed. It is best here to have a type of activity which can be repeated several times during a short period of time, thus allowing the student to explore enthusiastically, and pick his best work for display.

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[1] Ives, Sammie, Speaking of Creativity, Denny-Ives Publication, Albany, N.Y., 1969, page 26.

One art form that has worked well in this type of experience is the multi-colored ink-blot on white paper. Here a student need only appreciate color combinations with some symetry to be truly creative. The activity is a lot of fun and just about anything put on the paper will transform into a masterpiece upon folding. When mounted and displayed, they will be very attractive and quite encouraging to the budding artist.

From this point we carry the discovery one step further by again creating a type of work that will be successful, while allowing a more dominant personal influence. It is important here to demonstrate some of the possibilities, leaving the student to discover others by themselves and gain confidence.

Water colors dropped, splashed or drawn on wet paper will form very interesting combinations and color-shapes. It is a very good art form in itself, but more creatively, the student can look at these forms and probably see something else: a scene suggesting a perilous journey, perhaps, or a beautiful landscape, or his favorite animal. A felt tip pen is then supplied and he outlines the colors to suggest what he sees. The painting is then titled, signed, mounted, and displayed.

The teacher should now begin to see himself in a helping relationship to the student, instructing specific skills as they are needed. This not only facilitates the learning process, but fosters a mutual trust of ability between instructor and student while developing cohesiveness in the class. Carefully designed group projects here could be implemented so that students not only rely upon the instructor, but each other for ideas and techniques. Furthermore the use of such terms as "original", 'sensitive', 'creative', or 'fluency' in a positive way while refering to work is both reinforcing and helping in getting students to develop and think with such concepts.

First, an experience is designed to allow the students to originally create and explore through creative expression some specific outlook or experience they have had. It is best here to present a controlled input of ideas so that if a student is lacking in truly original ideas, he could fall back very comfortably to what he has just experienced. Secondly, the materials used should be of a more sophisticated type, lending experience and confidence to one's ability, yet very complimentary and attractive in most forms to insure some measure of success. The expression and design of these ideas, naturally, should be very unstructured.

One of many excellent ways of accomplishing this is to have students look through paper towel tubes at various landscapes, flower closters, or other naturally occurring "still lives" to provide the controlled input. Then using white tempra paint, black paper, and water colors, the students will attempt to paint some sort of garden, forest, or other colorful scene. The brush is first dipped into the white tempra, then into one or two of the water colors so that the brush is layered. The effect on the black paper is very pleasing in many forms and allows the student to create a very attractive original brush painting.

From here, the instructor should use an increasingly varied number of common, natural materials and objects to instill enthusiasm for new possibilities, while twisting around old ideas into novel ones. It is the instructors challenge to relate natural beauty and harmony to his student's work, and vice-versa, in order to help the student become increasingly sensitive to his senses, to his surroundings, and to his own magnificent creative ability.

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SUGGESTIONS FOR CURRICULUM ENRICHMENT OF ARTS AND CRAFTS THROUGH AN OUTDOOR EDUCATION APPROACH

By: Betty Ells

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Arts and Crafts is an activity found in the school curriculum which normally leads a child to increased awareness of and sensitivity to the world around him. Through Arts and Crafts a child develops the basic concepts of shapes, color, texture, symmetry, designs and patterns, movement, and distance perception. All these can be learned in a classroom setting. However, by placing the same curriculum in the out-of-doors the methods used for developing these concepts increases infinitely, in addition to the fact that the child is surrounded by hundreds of stimuli which he can learn to discover and appreciate in new and different ways. Furthermore, the use of the out of doors may serve as positive reinforcement to any or all of the concepts already learned in the classroom. The child also gains a great deal on a personal level from this type of experience, simply because his project is totally his from start to finish. An indigenous program gives him the chance to create from what he finds in his environment, rather than waiting for an environment to be placed in his hands.

Most schools, whether rural or urban, posses some of the basic things necessary for an idigenous program. Below is a partial list of things found on most property and the concepts which may be developed through their use:

AREA	CONCEPTS
School Building:	Shapes, color differences, texture differences
A. Brick	
B. Stucco	
C. Wood	
D. Adobe	
E. Other	
Man-made Areas:	Shapes, color, texture
A. Sidewalks	
B. Asphalt	
C. Gravel	
D. Telephone poles	Distance perception
E. Basketball poles	
F. Flag poles	
Erosional Areas:	Designs and patterns; changes therein
A. Water erosion	
B. Wind erosion	
C. Frost and ice erosion	
Grasses:	Shapes,colors, patterns, and related changes due to weather, movement and/or seasonal changes
A. Wild	
B. Playfield	
C. Lawn	
Trees:	Same as for grasses, and the following in addition: texture of bark, patterns in leaves, symmetry
List kinds	

Water areas: A. Streams B. Ponds C. Ditches D. Springs	Colors and variations (seasonal or other), textural appearance due to wind, rain, etc. Movement--flow, as well as vertical, i.e., splashes

Arts and Crafts is in itself a program which serves as curriculum enrichment. It is directly dependent upon other subject areas both for materials and ideas applicable to the basic concepts which it seeks to impart. Below is a partial list of activities that have been correlated with specific subject areas which may be helpful.

Arithmetic:

Figurines from stones or twigs.
Sketching natural scenes--aids in distance perception and line concepts.

Biology:

Animal track study--plaster casts
Leaf study through a variety of print methods, including spatter prints, clay impressions, blue prints, crayon rubbings.
Use of natural materials to make utensils, jewelry, cordage, whistles, tea, fishing plugs.
Centerpieces from natural materials.
Painting with natural dyes and pigments.

Earth Science:

Observing and sketching clouds; erosional patterns.
Snow sculpture.
Observing and sketching from patterns.
Making natural pigments from clay, and soft minerals.

Language Arts:

Dramatizations of natural occurences.
Story telling.
Instructions for any arts and crafts project.

Music and Drama:

Sketch physical movements in nature.
Sound patterns: comparison of natural and man- made sounds.
draw pictures of sound patterns
Make instuments from natural materials.

Social Studies:

Gravestone rubbings.
Handicrafts out of natural materials, including: grass or pine needle mats, Indian ceremonial equipment, and any one of numerous handicrafts native to your particular area.
Making old toys from native materials.

Arts and Crafts:

Observing, counting color tones.
Sandpaper art--observing color variation through rubbing natural materials on sandpaper.

Painting on smooth rocks.
Natural dyes and pigments from vegetables:

Onion skin	light brown, yellow, orange
Spinach	green
Beets	rose
Coffee	brown
Carrots	yellow

A successful Arts and Crafts program conducted in the out-of-doors requires neither great talent nor vast quantities of materials. However, it does require willingness and enthusiasm for learning with the students. It also requiresa willingness to experiment and the courage to answer a question with " I don't know, but lets find out." This type of a program works because it can be modified to fit any setting. It is stimulating because both students and teacher have the opportunity to develop new ideas through awareness of the world around them, thus fostering personal growth in the many new and exciting directions.

SOCIAL STUDIES

SOCIAL STUDIES IN THE OUT OF DOORS

By: John Huchro, Tom Fisch

What is Social Studies?

In its very basic form, Social Studies is the study of man and his relationships with his social and physical environment. Rugg and Kreuger in their text, The Social Studies in the Elementary School, interpret Social Studies as, "all these activities and materials which are needed for an understanding of modern civilization and their historical development. They form a broad department which coordinated with the natural and physical sciences, the creative arts, and the language arts of reading, literature, writing, etc. Thus the Social Studies comprise the intellectual care of the entire school curriculum." Social Studies in a broad understanding then represents these instructional materials and means which promote human relationships. Areas of geography, history, economics, civics, sociology, anthropology, social psychology, and philosophy are today organized around the secila needs and interests of the students. The chart below from Programs in Outdoor Education (Freeberg, Tayler, 1963) also illustrates this concept.

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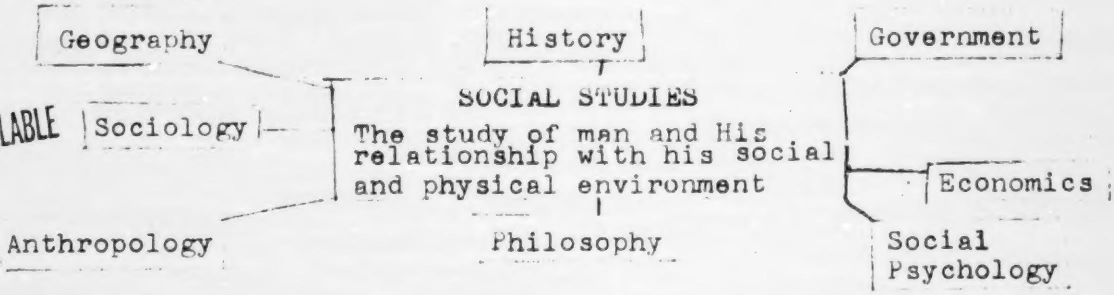

As Social Studies has been defined on the previous page by Ernest Coons, our purpose is to relate its use in the out-of-doors through the utilization of a variety of specific sites at which we may incorporate many of the areas of Social Studies at a single experience.

By using a "site analysis" approach, we think that the classroom teacher may feel more comfortable in using a particular site to is best advantage.

Nearly all of the specific sites can be used with a variety of age groups and the specific activities can be modified to the needs and capabilities of each particular group at the discretion of the group leader.

A CAMP Developing the concept of respect for the rights of others; learning to accept constructive criticism and suggestions graciously; establishing means for democratic living outdoors; developing a respect for group leadership; developing understanding and respect for patriotic traditions; developing mapping skills; studying land formation and drainage; sharing materials, tools and ideas; sharing responsibilities; developing a realization of the individual's relationship to a group; gaining self reliance, self control, and self respect.

A CEMETERY	Develope the understanding as to the location of the cemetery (high, well drained, often near church), religious background of buried, reasons for type of monument and carving (pictures, verses, materials monuments constructed of); understanding civic pride through condition of cemetery; develop understanding of trends of diseases, natural disasters, war, through study of dates and ages on monuments; developing respect for rights of others through behavior in the cemetery; study the history of the local area through background of names on monument compare names on monuments with roads, streets, buildings, villages, etc. to determine influence on the area
CITY HALL OR GOVERNMENT BUILDINGS	developing a sense of participation in democratic government through participation in council meetings, etc; learning respect for group leadership; learn greater understanding of cooperative problem solving; developing respect for our form of representative government; learning how the government helps develop, control, and protect our natural resources; learn about agencies which contribute to the wise use of our natural resources; volunteer for participation in community good turn projects; identifying oneself with others.
A CROSS COUNTRY BEE LINE	develop the understanding and practical use of the compass, transent and other related instruments; develop concept and experience in accurate map making; learning map reading and construction; study land formation and drainage; develop concept of a land use survey; interview old settlers in area for history of area; take an inventory of the natural resources of the area; take and inventory of man's effect on the area in terms of industry, residences, preservation of natural areas, etc.; trace streams that cross line as to their effect on area; search for Indian relics and learn about Indians; visiting historical sits
A DAIRY FARM	develop concept of why farm is of dairy variety including soil types, land features, need of type of service, availability of outlet for products; effect of unit on the economy of the community; study modification in methods of dairying from early times to present; develop a product checklist (milk, cheese, butter, cream, etc); developing a relationship to a group

A DESERTED FARM	study land forms and drainage for background as to type of farm; study soil make up for understanding of why farm may have been deserted: study remains of buildings for information as to type of construction, materials used, affluence of residents, tools used in construction; relationship of water supply to house and barns; accessibility; relationship of barns to house, distance, direction, and why; develope understanding of the problems of the pioneers through dramatization; develope theories as to why abandoned; compare adaptations of people on farm and in urban live and their likenesses and differences; participate in archeological excavation or restoration; sketch house as it might have appeared; develop a list of the different kinds of trees and shrubs that had been planted both for ornmanental and practical use
A DISEASE	develop understanding of effect of types of diseases contracted by humans and other animals from insects, and other animals through observation of evidences found in cemeteries, farm stock modifications; results of human epidemics in past and methods of cure using environmental factors such as fresh air, herbs, feeds; effect of plant diseases on man's adaptation to his environment.
A HIGHWAY OR ROADWAY	compare different types of roads for purposes, uses construction materials; study history of the road and its modification from times of the path if relevant (trace history along it); study modification of methods of road construction; study the effect or roads on roadside environment, both natural and man made; develop concept of mapping skills through first hand observation; comparisons of past and present roadside lodging; comparisons of past and present means of transportation; relationships of roads to hamlets, villages, cities, etc.
HISTORICAL SITES AND MUSEUMS	develop understanding of effect of natural resources upon history of civilization; participation in archeological excavation or restoration; develop an understand of the effects of a site on a community and its development; compare artifact with hisory of local community, Have they modified or become non-existent; search for Indian relics and learn about the Indians; copy folk festivals through presentation of a pagent.

PLANTS	study uses of various plants in history such as uses as feeds, medicines, shelter, fuel; develop concept of relationship of plant life to animal life; constructive and destructive effects that man has had on plant life; importance of plant life in development of cultures and society in the past, the present and in the future.
AN ORCHARD	study to determine the reason for the particular location of the orchard such as terrain, drainage, climatic features, availability of land, etc; study effect on economy of area and economy as whole such as labor force during harvest and year round maintainance; effect on related industry such as bee keeping and crate manufacture, and canneries; modifications in methods of operating an orchard from earlier times to today.
A PAPER MILL (OR ANY INDUSTRY)	develop understanding as to location of industry including economic, geographic, political, etc; study the cycle of a forest and its replacement, learn about depletion of our natural resources and effect industry is having (positive as well as negative); study pollution abatement or lack of it; study a tree stump and trace historical dates through it; trace manufacture of a product today and compare with past methods; study methods of transportation of finished product; study effect of industry on area, including economic, environmental, etc; study the background of the employees as to education, nationalities, affiliations of all kinds, etc.
STRUCTURES (FENCES AND WALLS)	study the different types of walls and fences as to the reasons for their development in their particular types (stump or root, rail, stone); theorize as to effect on society; study society of living things on fences and walls and their inter-relationships; learning map reading and construction; developing and appreciation for the labors of the farmers who cleared fields and built walls.

SOCIAL STUDIES BEYOND THE CLASSROOM

THE FOLLOWING IS FROM AN ARTICLE WRITTEN BY ERNEST COONS - WHAT IS SOCIAL STUDIES? - WHICH APPEARED IN THE REPRINT OF PROCEEDINGS FROM A CONFERENCE (OUTDOOR EDUCATION EXPERIENCES FOR EMOTIONALLY HANDICAPPED CHILDREN AND YOUTH) HELD JUNE 7,8,9, AT PLATTSBURGH, NEW YORK.

EXPERIENCES WHICH THE OUTDOOR SETTING PROVIDES IN AREA OF SOCIAL STUDIES

Developing initiative in making choices
Identifying oneself with others
Respecting the rights of others
Sharing materials, tools and ideas
Solving problems cooperatively
Experiencing success and failure
Respecting group decisions
Sharing responsibilities
Respecting group leadership
Participation in democratic government
Accepting criticism and suggestions graciously
Developing a realization of the individual's relationship to a group
Working with others
Gaining self-reliance, self control and self-respect
Gaining self-confidence through contributions to group
Learning about "web of life," ecological balance principles
Learning about depletion of natural resources
Learning how the government helps develop, control and protect our natural resources
Learning about the agencies which contribute to the wise use of our natural resources
Understanding the effect of natural resources upon population distribution
Understanding the effect of natural resources upon the history of civilization
Search for Indian relics and learning about Indians
Visiting historical sites
Interviewing old settlers
Learning map reading and construction

SUGGESTIONS FOR SOCIAL STUDIES ACTIVITIES:

Use of compass and related instruments
Map making
Visit of fire towers
Study land formations and drainage
Study top soil and man's influence
Take inventory of natural resources
Judge area as pioneer homesite for basic needs
Dramatizing problems of pioneers
Visit abandoned cemetery
Study tree stump record for historical events
Trace tree from cutting to final product
Name ways environment influences people's lives
Study city or local water resources

Study and visit places of interest in the community
Investigate damage of storms
Cost of litter in your community
Effects of pollution on growing plants
Prepare and use flour from natural grains to complete project
Compare insect activities with man's occupation
Compare man's inventions with nature's devices
Study nature's compasses
Make breads, butter, candles, ice cream, etc. primitive ways
Study history of locality and study sites for evidence
Study old house or barn for story of man's tools, construction and
  basic history
Visit old farm and "recreate" by study and sketches with maps
Keep logs on experience
Establish the means for democratic living in the outdoors
Participate in archeological excavation or restoration
Copy folk festivals and fairs
Trace the manufacture of a product today and compare it with the past
Study geographical features of land areas
Establish bird feeders outside classroom window
Participate in community "good turn" project
And many, many more. . . . .

SOCIAL STUDIES IN THE OUTDOOR

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by Paul Pontieri

Social studies is the study of the interrelationship of man and his environment, whether it be physical or social.* From this basic definition all areas of social studies are covered. If you are talking about history, sociology, economics or any other area of social studies you always come back to man and his environment.

Using man and his environment as the basic definition for social studies, outdoor education lends itself to any social studies curriculum. It is important to remember that outdoor education is not a total program, but a supplement to your program. Example: A Unit On Community Life. You have discussed different types of community life in different cultures; the Eskimo, Indian, African, etc., how they lived, traded, traveled, etc. Then you are ready to take your class out into the community to discuss what makes your community as it is: What do you need? (Fire protection, police, etc.) What businesses serve just your community, which serve a large area? Then compare yours to the Eskimo or Indian.

The emotionally disturbed child has already failed by most conventional means of teaching. By taking him out of the classroom and placing him in a familiar surrounding you are relieving him of a threatening situation. Outdoor education can also be a behavior control for this type of child. His participation in the program is contingent upon his behavior.

The outdoors may help stimulate the emotionally disturbed child in his other academic areas. Reading, spelling, creative writing, math and science can all be woven into a successful outdoor social studies program.

The following is a list of possible outdoor activities. Most of these activities can be done within walking distance of most neighborhood schools.

1. Have the children establish general rules for behavior during an outing.
2. Compare your community with ones of different cultures.
3. Discuss how people adapt to changes in their environment then go out and see what types of changes might have come about in your community in the past 50 years.
4. Have children use materials at hand to build shelters or tools.
5. Go to the local government offices and visit juvenile court in session, county jail, mayor's office, etc. Find out first hand how the community runs.

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*OUTDOOR EDUCATION EXPERIENCES FOR EMOTIONALLY HANDICAPPED CHILDREN AND YOUTH, State Education Department, Division for Handicapped Children, Section for Emotionally Handicapped

6. Transportation -- visit local train yard, take a trip to airport.

7. Make a map of the local area--major points of interest, places they have visited or will visit.

8. Take class out and have them locate ways that man has altered or destroyed the environment.

9. Visit a supermarket and discuss the process of how food gets to you.

10. Visit a bank, discuss mediums of exchange

The above activities are just a small number of the hundreds that can be done outdoors in the area of social studies.

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OUTDOOR EDUCATION IN SOCIAL STUDIES

By: Allan Lauber

The following two lesson plans are by Dr. Thomas J. Rillo, at Glassboro State College in New Jersey.

1. Exploring Old Cemeteries: An Outdoor Education Technique

Dotting the landscape in quiet, overgrown, and forgotten locations are many old cemeteries. The tombstones are weathered from the elements and some have fallen to lie in an undignified manner among the grasses and foliage which hide them during the spring and summer months. Others have been tilted from the growth of trees adjacent to them.

The inscriptions bearing names, dates of birth and death in some cases a brief biographical statement, speak from the past to the individuals who are fortunate to discover such a vertable social studies resource.

Many historical events seem to come alive when viewed first-hand on the face of a sandstone, limestone, or granite tombstone. History can achieve "heightened vitality" (John Dewey's phrase) when teacher and class take to the field to explore and old cemetery. This can be a richer experience carrying with it a sense of personal achievement, an element of self-discovery, of creativity, the Eureka effect. A rich experience should be the culmination or fullfilment of other experiences. It is for this reason that a class outlines the problem of cemetery exploration before embarking on the field trip. Specific assignments should be accepted by small groups. Study guides or questions can be formulated prior to the field trip. Classroom study in social studies should be closely correlated with the field activity if optimum learning results are to be realized. The following questions might be presented as problem solving situations:

1. Find the oldest tombstone.
    - A. From what material was the oldest tombstone made:
    - B. Where is the oldest tombstone located in the cemetery?
    - C. How old was the individual who died?
    - D. Is there a footstone? How far is the footstone from the headstone?
    - E. What kind of vegetation is growing on or near the grave?
2. Find the youngest tombstone.
    - A. Ask the same questions as you did for the oldest tombstone.
3. When was the graveyard abandoned?
    - A. How old is the biggest tree growing adjacent to a tombstone or on the grave?
    - B. What is the date of the latest burial plot?
4. What is the condition of the soil?
    - A. On the oldest grave
    - B. On the youngest one
5. Measure the depth of the inscriptions.
    - A. On the oldest tombstone
    - B. On the youngest one
6. Is the evidence of a predominance of a single family?
7. What is the average age of death in ten year intervals for men? for women? for children?

8. Do the designs and shapes of the tombstones change through the years? If so, how?
9. Are there any graves that do not have tombstones? How can you tell it is a grave?
10. Can the tombstone and its general appearance relate what the standard of living was for the particular family or era?
11. Is there a fence or fencerow surrounding the graveyard? If so, what kind of fence or fencerow?
12. Is there evidence of a building? If so, what kind of building was it? For what purpose was it used?
13. Did the women live longer than the men? Was this true for one particular era?
14. Is there evidence of an epidemic? What kind of evidence?
15. Are there any unusual epitaphs on the tombstones? If so, why are they unusual?

These are just some of the many questions which can be utilized by a teacher and class for exploring an old cemetery.

2. Gravestone Rubbings and Historical Lessons

The questions above could be assigned to small groups either collectively or by sets of questions to individual groups. All groups should make tracings of the tombstones for further study back in the classroom. This can be accomplished by the use of crayon or dark pencil and brown wrapping paper or paper bags cut on the sides for maximum surface area. By rubbing pencil or crayon on the paper, a reproduction of inscription or epitaph is made possible. Then taking these replicas back to the school will help to make the experience a generative one, where students can intensify their analysis, develop a more concentrated scrutiny and make a more rigorous evaluation. A visitation to the County Court House for the purpose of delving deeper into historical records will enhance the concepts learned in the field. Cemeteries can provide a rich learning experience with an intensity to make it a memorable event in lives of school children.

SOCIAL STUDIES IN OUTDOOR EDUCATION

By: Joseph Ryan

A few thoughts on Social Studies through Outdoor Education which may be of assistance. Social Studies teachers have a serious responsibility placed upon them by the very nature of their courses. The idea of social studies just being the study of History is a narrow interpretation which many of the public entertain and it is this view which must be dispelled. One method which could be helpful is curriculum enrichment through Outdoor Education.

If one subscribes to the idea that social studies encompasses much more than note memorization of Historical facts and figures than they are well on their way to the true study of the social sciences. The apparent log of the social science in comparison with the natural science has created a great number of problems. Man has made great scientific and technological advances for which he seems socially unprepared to handle. The gap between man and his machines must be filled and the task at the school level falls to the social sciences. Students must be prepared to face the world at a realistic level as well as each other.

The key is the "social" aspects of the social sciences and it is here that the true value of Outdoor Education is demonstrated. Taking the students out of the " standard classroom" and placing them in a outdoor situation creates a place where they may socially interact. This activity under the supervision of an interested teacher can be an outstanding but painless experience in social interaction education. Whether this Outdoor Education activity is an on-site lesson such as plotting out a pioneer cabin with string on the parking lot or a resident experience with a pioneer bridge construction, the students are socially interacting in a controlled situation. One should not make the mistake of assuming an Outdoor Education Program must exist in the country or be expensive. The value of a resident experience is very high but on-site activities can be as rewarding. A list of on-site and resident activities will follow.

The social interaction provided by a well planned an executed outdoor lesson is one of the most valuable factors in Outdoor Education. The change for a student and teacher to see each other in a different setting and light can open new avenues of awareness for both. The change from the texts and notebooks to an on-site experience gives the student a different view of social studies. It may stimulate an interest in social sciences never before experienced. A resident Outdoor Education Program provides a"living" experience with time to do the kinds of activities that are fun and educational. It also provides an atmosphere with less phonyness and real social interaction. This experience is valuable for both the student and teacher.

This may sound all well and good "but what about the curriculum?" There are great number of historical activities which can be performed outdoors. After all history did not just take place within four walls an idea which is important to convey this to the students. Field trips and living museums can be great experiences. A "real feeling" for the times can be transmitted

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through re-enactments or craft work. The realization that people in history were people not just staid portrates or words on a page is an important concept which can be conveyed through an Outdoor Education activity. Students need a healthy feeling of their National Heritage and Outdoor Education can greatly assist the installing of this feeling.

Another aspect which should be investigated is the area of cross curriculum cooperation. Since the social sciences comprise such a large area, there are many places where it can cooperate and compliment other subjects. Outdoor Education activities can provide the interesting common ground for such cooperation. The team of teachers approach (4 academic on a team) can easily lend itself especially in scheduling to an Outdoor Education Program. This is true to a lesser degree of the team teaching approach, (team of same subject). Total grade level Outdoor Education Programs have also proved successful.

Outdoor Education is not the panacea for the problems in social studies. It can provide valuable curriculum enrichment and it has redeeming social value. Whether a school chooses an on-site or resident experience, it will benefit from it. A teacher can find a way out of the daily routine by instituting a few Outdoor Education activities and the student can find a new world open to him.

COLONIAL LIFE--WHAT WAS IT REALLY LIKE?
USING OUTDOOR EDUCATION IN THE SOCIAL STUDIES CURRICULUM
By: Stephen Parks

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"Outdoor Education is concerned with direct learning experiences which utilize the natural environment in attempting to achieve the goals of education. It is not a separate discipline, but an essential part of the school curriculum, and provides opportunities to enrich the education of children by extending the classroom beyond four walls in order to use the outdoors as a laboratory for learning." ("Outdoor Education, The Great Outdoors," University of State of New York, State Education Department, Bureau of Elementary Curriculum Development.)

The method we used this morning enables teachers to go beyond the four walls of the classroom and involve themselves and students in a direct learning experience. The technique, investigating an abadoned graveyard, involved taking rubbings from tombstones. The sheet entitled "Exploring Old Cemeteries, An Outdoor Education Technique," explains how to do the procedure and includes several questions for conducting on-the-spot investigation and discussion; discussion in the classroom/and further investigation at other facilities.

Using the Outdoor Education Idea to Teach About Colonial Life In America

In teaching about Colonial Life in America, I want my students to have the feeling that what they study is not merely words from a textbook but at one time was life. I want them to understand that that which went on 200 years ago actually took place. For students who are "slow learners," "emotionally disturbed," "exceptional children," this is a difficult concept to obtain because they do not readily identify with the printed page. We use the grave rubbings to determine possible moral values of the people of that time. What did colonial people think about the ideas of dieing, death, eternal peace, heaven, life on earth? We also determine changes in the written word by comparing words from the tombstone to words of today.

Next, we take the names of the earliest people discovered in the exploration, and use them for research purposes in the local court house, newspapers, deeds rooms. Our purpose is to determine causes of death, occupations, where these residents lived. The end result is to provide the student with concrete evidence about a life that existed years earlier and yet involves the student actively in learning on his own.

Other Outdoor Education techniques for teaching about Colonial Life would be to: 1) use the school property for outlining a basic log cabin; 2) make early furniture using the lashing method or peg method; 3) split and chop logs; 4) make fires; 5) find edible wild plants; 6) use the broad axe for for hewing; 7) notch logs as a method of interlocking logs in the cabin; 8) make quilts; 9) cane chairs; 10) make tools such as a hickory mallot or shaving horse; 11) or cook meals such as Blackberry Cobbler, Pumpkin Cake, Ash Cake, or Brunswick Stew over an open fire. Many of these projects can be carried out at the same time by using the multidisciplinary approach to involve other teachers in doing the unit. Information for these projects can be gotton from Eliot Wigginton's, The Foxfire Book, Dr. Benedict Lust's Kneipp Herbs and their Uses, and Ellsworth Jaeger's Wildwood Wisdom.

As you can see, outdoor education holds limitless possibilities to expanding teaching beyond the four walls of the classroom and involving student and teacher into something exciting.

Foxfire Book Menu

Brunswick Stew

The vegetables may be either raw or canned. Mix everything together, and simmer a long time. If you want to can it, put in jars and place them in a boiling water bath for 1 1/2 hours.

- 2 lbs. cooked ground beef
- 1 lb. cooked lean ground pork
- 1 small cooked chicken, chopped
- 3-4 diced potatoes
- 1 pint kernel corn
- 1 cup lima beans
- 2-3 diced carrots
- 2-3 chopped onions
- 1 pint tomatoes or tomato juice
- catsup
- chili powder
- black pepper and red pepper
- Worcestershire sauce

Ash Cakes

Mix up dough for corn bread, and make sure it's thick enough to hold its shape. Clean out a corner of the fireplace, put the cake in it, and cover it with a clean cloth. Put hot ashes over the cloth, then put hot coals on top of that. It takes about half an hour.

Pumpkin Cake

- 1 1/2 cups corn oil
- 2 cups sugar
- 3 cups flour
- 3 teaspoons baking powder
- 2 scant teaspoons soda
- 1 teaspoon salt
- 2 teaspoons vanilla
- 4 eggs
- 2 cups pumpkin
- 1 cup raisins or fruit cake mix
- 1 cup chopped nuts
- 2 teaspoons pumpkin spice

Mix corn oil, sugar, flour, spice, powder, soda, salt, and pumpkin. Add eggs beaten well. Add vanilla, nuts, and raisins that have been mixed with 1/2 cup of extra flour. Bake in a loaf pan for about an hour at 400 - 450°.

Blackberry Cobbler

Blackberries, enough for one pie
Sugar to taste
butter, small amount
biscuit dough, enough for several biscuits

Cook the blackberries until they come to a boil, add as much or little sugar as you want, and then add some butter. Cook until thick. Roll out the dough, cut as for biscuits, and drop into the blackberries. Then roll some dough thin, cut into strips, and place on top of the blackberries. Set the pan in the oven until the crust on top is brown.

Although some of these recipes call for the use of an oven, there should be no problem using a fire. All that is needed is a little practice.

Curriculum Enrichment Through Outdoor Education

- Local History
  - Grave stone rubbings
  - Finding veterans
  - Epidemics
  - Mortality rates, age

- Trace an old family
  - Clerk's office
  - Title search school propery

- Courts
  - Visit a juvenile court in session
  - County jail

- Food
  - Colonial tavern
  - Gilded age restaurant
  - Depression soup kitchen

- Historical Constructions
  - WWI French
  - Pioneer bridge
  - Tipi
  - Charcoal kiln

- Resource People
  - Government agencies
  - American Legions-records of local regiments
  - Brigade of American Revolution
  - Present colonial solders in authentic uniform and live black powder demonstration

- American History
  - Plot out a pioneer cabin
  - Plot out a homespun farm
  - Visit the site of an old farm -- reconstruct it
  - Visit old school -- do a lesson like they would on site
  - Early crafts
  - Axemanship
  - Candlemaking
  - Colonial cooking
  - Spinning or primitive loom
  - Visit sugar bush or related site
  - Barn raising bee-unified arts cooperation
  - Quilting bee

- Indian Unit
  - Lacrosse-divide class into groups
  - Indian cooking
  - Indian weapons-tomahawk, war club
  - Building a model longhouse
  - Indian tools--hoe, planting stick
  - Snow snake

- Transportation
  - Railroad
    - visit old or active railroad
    - visit old station and yards
  - Canals
    - visit old canal

TEACHER REFERENCES

There are a number of books available on outdoor education. Below is a list of those that I think will benefit the teacher in developing a *feel* for the out-of-doors and for carrying out activities in the out-of-doors. After that you will find a list of some materials I have found helpful in applying outdoor education to the social studies. I would appreciate additional suggestions if you have any.

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MUSIC

MUSIC IN THE OUT OF DOORS

By: Edward Duggan, Lynn Ann Darrah, Roger Moore, and Dick Molholsky

The purpose of this unit is to give teachers a guide to music in the out of doors. Through simple activities and observations, the student can learn that both the sound and interpretive structure of all types of music can find roots already existing in the world around them. It is the incorporation of sense utilization to man's environment for the specific purpose of creativity.

Objectives

At whatever educational grade level, the student will be able to:

1. State the origin of music
2. State the origin of musical instruments
3. Redefine the significance of music to one's self
4. State the purpose of music to his peers
5. State the purpose of music to society as a whole
6. Identify variety, abstractions, sophistications, and complications in the evolution of music.
7. Appreciate the creative expression of man and nature
8. State the many facets of music
9. Participate in music appreciation activities
10. Recreate musical instruments from natural materials found in the out of doors
11. Compare sounds in nature with sounds composed by man
12. State the simple truths of the world which really form the heart of music

General Activities

1. Rural-Field trips to a farm or setting where students can listen to a variety of sounds, such as:
   a. Animals
   b. Birds
   c. Insects
   d. Water (brooks, lakes, waterfalls)
   e. Trees and bushes (movement of)
   f. Voices

2. Urban-Field trips to a city park where the student might have such sounds as:
   a. Traffic
   b. Sirens and horns
   c. Birds
   d. Trees and bushes
   e. Voices

Specific Activities

1. Singing and Dancing
   a. Singing campfire songs
   b. Composing songs about nature and the out of doors
   c. Imitation of bird calls
   d. Playing singing games
   e. Action singing using motions to describe words being sung, i.e., "Six Little Ducks"

- f. Making drums, rattles, tom-toms and head dresses for an Indian ceremonial
- g. Marching, dancing, skipping, clapping and leaping to music recordings, drum beating and songs
- h. Using the natural sounds of nature, i.e., waterfalls, wind in the trees, etc., to perform various dance movements
- i. Listening to the sounds that trees make and then perhaps conducting music in the trees (pretend that one is a conductor of a symphony orchestra and the other trees are his musicians)
- j. Listening for the sounds that such things as water or a cricket make and then delving into how the sound is produced and then perhaps growing some of the various types for further study.
- k. Jump rope in a rhythm
- l. Attend a parade and observe the bands marching to their music

2. Making music from Natural Instruments (not altered), such as:
   - a. Acorn cap - whistle
   - b. Pebbles in a small hollow log or gourd as a rattle or moracca
   - c. Hollow reeds - whistles and horns
   - d. Branches waved in the air or struck on the ground
   - e. Tree stumps - drums
   - f. Rub pieces of bark together
   - g. Strike rocks together
   - h. Find a tree with many branches in reach of students, tap around the tree and branches noting the different pitches from different volumes and lengths
   - i. Make up a "nature band" from collectable items.

3. Making musical instruments from Nature, such as:
   - a. Stick xylophone - hickory sticks
   - b. Turtle Shell Rattle - take shell with a bottom, put in seeds and secure top and bottom and close up head and tail area
   - c. Seed Pod Rattle - using Black Locust
   - d. Rock xylophone
   - e. Birch Bark Banjo -put rubber bands across stable bark
   - f. Put a stick in the ground and rub another stick on top
   - g. Make a flute from striped maple

4. Other items found in the out of doors that produce musical sounds:
   - a. Flute - Tap a long pipe at one end with a hard stick. Then continue tapping while students clutch pipe at various lengths
   - b. Wire Fence Guitar - Pluck different wires for different pitches.
   - c. Tap the supports of a bridge for different pitches

5. Other Activities
   - a. Make up a choir of insects by collecting various types
   - b. Have students listen to specific instruments and compare to the sounds they have heard out of doors
   - c. Take slides of nature and put them to music

. Relate previously composed music to natural sounds
  a. Listen to a record and write down sounds heard and relate to those sounds found in the out of doors
  b. Listen to such recordings as, Victory at Sea, Grand Canyon Suite, and William Tell Overture, and describe various passages that imitate natural sounds found in nature
  c. Listen to sounds in nature and then compare them to recordings of the same

MUSIC IS EVERYWHERE

by Nana Sue Koch

In this workshop, we will show how the environment, both natural and man-made, can be employed as a teaching circumstance to help the emotionally disturbed child to use differentiated sound and rhythm of the outdoor environment in order to gain a new access to his emotions.

Basic Concepts

1. There is a need to singularly differentiate sounds and their rhythms.

2. The sounds and rhythms recognized singularly and listened to for their own rhythm can provide a musical experience.

3. This experience with a sound and its rhythm and combinations of distinguished sounds and rhythms can be used to give access to the expression of emotions.

What Will Be Done

1. Presentation of particular concepts of sounds and rhythms, how to prepare yourself and your students to observe, to discriminate and to experience through a bodily interpretation.

2. Field experience in listening, moving in the environment forces and selecting materials from the environment with which to create sound and rhythm to be expressed through movement.

3. Presentation of information and bibliography for teachers on how to use environmental material and how to teach bodily interpretation of the sounds that are everywhere for greater emotional expression.

In conclusion, the workshop will combine a presentation of concepts on sound, rhythm, and expression of these in movement with a field experience to discover and to learn about the musical sound as rhythm in the environment.

Resources

1. Music, Movement and Mime for Children, Vera Gray and Rachel Percival, Oxford Press.
2. Music for the Handicapped Child, Juliette Alvin.
3. The Slow Learner and Music, J.P.B. Dobbs, Oxford U. Press.
4. Music Recipe Book, Educational Development Center, Cambridge, Massachusetts (for making instruments)
5. Move, Grow, Learn Program, Chicago, Illinois: Follett Educational Corp., 1969.

6. *This is Rhythm*, The Dancer Shop at the Children's Music Center, 5373 West Pico Blvd., L.A., California 90019 (record)
7. *Music Therapy in Special Education*, The Dancers Shop at the Children's Music Center, 5373 West Pico Blvd., L.A., California, 90019. By Paul Nordoff and Clive Robbins
8. *City Rhythms*, The Dancers Shop at the Children's Music Center, 5373 West Pico Blvd., L.A., California 90019.

Other Resources

1. American Dance Therapy Association, 5173 Phantom Court, Columbia, Maryland 21043
2. American Music Therapy Association, Box 610, Lawrence, Kansas
3. Turtle-Bay-Music-School, 244 East 52 Street, N.Y., N. Y.
4. Institute for Sociotherapy, 39 East 20th Street, N. Y., N.Y.

MUSIC AND MOVEMENT IN THE OUT OF DOORS

by Warren Schaefer

My experiences and those of the school I work for have indicated, over the past few years, that special areas of education cannot be approached in the same manner with emotionally disturbed youngsters as they might be with children in a conventional setting. Music, more than any other area, has needed the most drastic overhauling. While gym and crafts have a more general appeal and can offer a physical outlet or the immediate gratification of a one day project, conventional music has tended to be music appreciation, learning rhymes or holiday songs, and teaching actual skills. Most students with any label would probably get more from music if they found it enjoyable from initial contact. Approaching music from its basic element, beat can be successful, but even rythm bands, given the nature of some students, must be well planned to succeed.

After several years of chasing down music classes, which seemed to be being conducted in the halls, it was decided to abandon conventional music for music and miscellany (this later took in dramatics, movement, video, etc.) The best (most successful) results always seem to come from activities which were allowed to arise from the children's own self-expression. These activities become much more appealing when adapted to the out-of-doors if only because of the physical release of being outside and the more natural setting.

I wish to explain the phrase "activities which were allowed to arise," before I propose any activities. The teacher, believe it or not, should be in control. When I first started teaching I was asked to prepare two sets of plans. When I asked "Why", I was told they were for when the first plans didn't work. I don't mind making multiple plans, but I try to be prepared for whatever direction my original idea takes. You can develope a lot of new ideas this way.

I hasten to add, also, that the following activities do not require a greatly "talented" individual, just a teacher competent in guiding an activity and sensitive to whether or not that activity is succeeding. Too often I hear, "Oh that would be great with my group, but I can't do that". Don't sell yourself short or deny your students of any opportunities.

For Openers

Someone once said "...every child deserves a vacant lot...", and I couldn't agree more. I was raised in the middle of a farm which provided room for my friends and I to be Rocky Jones, Space Ranger, and Tim Tyler and his Jungle Machine. If you can't initiate any of the following ideas, you can at least tape the theme from Batman and let them show you how to play. (meaning your students)

Sometimes its difficult to decide which comes first in the out-of-doors, music or movement, so try both of them. Have your class march outside to a tape of a Sousa march.

The following are ideas for activities. Like all lists, not all are great ideas. Some I have had consistently good experiences with, some might work with other groups, and others are included for sheer number in case some are new to you.

1. Marching can be done to music (tape recorded, learned song, etc.) or to a phrase made of words you would like your children to learn (C-A-T - cat).

2. Tape the children's favorite singers and have them pretent they are those singers at an outdoor "Woodstock" type concert.

3. Tape music with strong characteristics and have children interpret their feelings to the influence. They can also just dance.

4. Have children go out individually and tape sounds. The one who collects the most (and can identify them) wins a prize. You can also have the group try and guess the sounds collected by an individual. This individual could be the teacher!

5. In line with the idea of acting out a favorite television program is the story-theatre type activity. This merely involves the teacher or student telling a story and speaking the parts while the other students act out the motions. I can say from experience that this is an especially good activity for boys when the story is about monsters or gangsters.

6. A greatly successful activity and again one that arose from my students has been a talking-singing blues. The group begins a rythm on real, homemade, or natural instruments. (This could also be nonsense chanting) while a student begins a story over this rythm. Folk singers for years have called this a "talking" blues. (Be sure not to do this with some old "fuddy-duddy" beat or the children will show a distinct lack of interest.)

7. Have the students imitate sounds and play them back on a tape recorder . Ask if they are satisfied with the imitation and if they can improve on it. There is always one child who thinks he does the best dog imitation. I once had a student who thought he was the best dog.

8. Some children are willing to write words to songs. If you chose a familiar melody and explain what you need a song for (I ask for theme songs for video productions we make) many children will try to write. I am fortunate in that I play the guitar and sing without smiling at some of the words. This can be very reinforcing to the budding lyricist.

9. Having the children make instruments is a good activity. Since the finished product need only be a means of keeping time or beat, the rough goods of nature can produce some nice little instruments. Dense-wood sticks make good rythm sticks. Nature also provides the

materials for rattles, drums, reed-whistles, etc. This can be a very fascinating aspect of music since it combines music and crafts. If you find your group is interested in creating a more refined instrument, there are plans and designs in several books. There are some clever stringed instruments that can be made with rubber bands.

10. Children can learn sound discrimination by listening for sounds as being either natural (water, trees, wind, birds, etc.) or man-made (cars, planes, machines, etc.).

11. Collect discarded bottles and cans as an ecology project and then have the children use them to make sound by simple method of filling them with sand, water, or paper and compare the sounds. You might then attempt to arrange them in a progressive scale if you think your "ear" is good enough.

12. A good task that might help you learn about specific children's sensitivities is to have them choose background music for an activity. If you can video tape an outdoor activity, take pictures of your group at play, or even run slides or a film without the sound, you can then have the childern say what they think the viewer should be hearing. This is like a subtle "tell me what they're doing in the picture" test.

13. A reverse approach to suggestion twelve would be to play a piece of music and find out what it suggests to the student. This should be tried with pieces that are both familiar and unfamiliar to the child.

14. Have the children perform an activity (marching in a circle for example) to a word pattern, beating of sticks, or vowels and have them vocal level, pitch, and tempo. Physically during this march they should also change their posture to accentuate the difference.

15. In line with a previous suggestion to imitate animals, it can also be fun to imitate instruments. As each child shows a proficiency at a particular one, they can remain as such until you have a full ensemble and you can then conduct them.

At this point I would like to say that the above are very general suggestions and are the basis for a multiple number of specific activities. I included dancing as an aside under number three, but that alone offers a world of possibilities to the right person. (But everyone knows a good musician can't dance.) I also said don't sell yourself short. It is not bad practice to learn a few musical gimmicks. It might be just enough to get interest started, and music is pretty interesting after that.

THE MUSICAL SOUNDS OF NATURE

by Helen Moody

Let's try and find the sounds of nature

The sounds of nature are all around us at all times, but in our busy hustle, bustle way of life we miss the beauty and excitement that it can bring. Music should be felt and enjoyed instead of made a drill children dislike to do. So let us take a stroll in the out of doors and see what we can hear.

It's early morning and the birds are just getting up. Each family is giving orders to the babies and the neighbors. The chatter is sweet and refreshing as more and more birds get into the act. There are high notes and low notes, fast and slow melodies, as each bird tries to express in song his delight in being alive and ready for another day. A soft breeze is beginning to blow providing a rhythmatic background for their melodies chirps.

In the distance, the cattle are coming in to the yard for their morning milking and we can hear their feet clopping over the stones and hard surface. The baby calf in the barn is calling for its mother and she responds. The farm dog has been aroused by all this and he begins to bark. In the background we hear another dog barking until the two sound almost like a duet.

On a very hot day, a journey in sound begins. The crickets and locusts are singing their loudest as they tell us it is hot and dry. Dust is blowing from the fields and the dirt grits under our feet as we walk to the creek for a bath under the water falls. The water sounds inviting. Fish are jumping after the bugs making a big splash as they play in the water because the air is still. Not a leaf is stirring; the sun is hot and there seems to be an echo in the air.

You can hear the sounds of machines as they are working in the fields, trying to get all the dry hay in the barn before the storm comes. You can even hear a tractor trailer in the distance as he shifts gears to climb a hill.

Then in the distance, you hear the first rumble of thunder. It is very faint but the skies are getting darker. A breeze begins to blow. The stillness is gone, sounds seem to be coming from everywhere. The thunder is slowly growing louder and louder. The locust are no longer singing and the stillness is broken by the winds that are blowing quite hard.

The birds, chattering as they fly, return to their nests to shelter their young from the approaching storm. The cattle no longer lie still in the shade but become restless and gather in groups under a tree. Wagons come to the barns faster and everyone seems to feel the excitement of the storm.

At last you hear a loud clap of thunder and see the lightening dancing through the sky. The storm is here and the rains come down in torrents, washing all the dust and grit away. The rain dances on the tin roof and the drops from the roof go plink-plank in the rainwater barrel. We can hear the trickle of the eaves as the overflow is carried over the stones in the yard. The frogs are happy it is raining and thei music fills the air.

You can smell the refreshing air as the rains clear all the unpleasant odors away. When the storm is over you can step outside and listen to the swift waters in the creek as it carries new fallen rain down stream. Everything looks fresh and clean. The birds are scampering over the lawns looking for worms that might be coming up through the wet ground. You can still hear the last rain drops as they fall off the roof and trees. Listen to the rustle of the wet grass as the children walk through it on their way to the barn.

Now that we have listened to all the sounds of nature, what skills can we use?

LISTENING

1. Stand quietly in a wooded area. See how many different kinds of birds you can identify.

2. Walk to a flower garden and listen to the insects as they fly from one plant to another in their endless task of cross **pollination**.

3. Take a walk to the edge of a lake or stream of water, listen to the flow of the stream or to the waves as they lap against the shore.

4. How many foot steps can you identify as you hear animals or humans walking through a field. Are the sounds different if they are walking on a hard surface road or through leaves?

5. Visit a farm during harvest season and listen to the sounds that come from the machines in operation. Are they pleasant or unpleasant?

6. If a storm is gathering, see how many different sounds the thunder makes as it comes closer to you.

OBSERVING THINGS ABOUT YOU

1. Watch the graceful flight of birds, are the movements even? Do they come to a stop easily?

2. Watch the sway of the trees, what rhythm can you feel? Is it soothing or disturbing? If clouds are moving quickly will this change the rhythm?

3. If you are near a large highway watch the cars as they weave in and out much like a broken ocean wave.

4. Look at the lightening in the sky. How many patterns do you see?

5. As a bee flys toward a flower, does he go in a straight line or does he go in circles? Can you imitate the flight of the bee?

MAKING THINGS FROM THE OUT OF DOORS

1. Move evergreen branches over a hard surface. What kind of sound do you hear?

2. Use a coconut half to make a drum by tightening some leather over the end. Put some small stones inside and make a rattle. Another thing to make is hold half the shell in the air and tap it with different objects. It works best suspended in air by a string.

3. How many different sounds can you make by tapping different lengths of sticks together? Do the sounds get louder or softer as you increase the length of the sticks?

4. Place a piece of grass between your thumbs and blow through it. What kind of sounds can you make?

5. Tap stones together and see how many different vibrations you get.

6. Suspend several different length pieces of wood in a row then tap them with sticks or stones.

7. Whittle out wooden spoons then use them in many ways.

8. Make a willow whistle. Here is how it is done.

Break off a branch of a weeping willow tree. The best time to do it is in the spring of the year when the sap is in the branch. Tap the bark to loosen it then soak it in water until you can slide it off. Let the bark and the wooden stick dry in the sun. Push gently on the soft middle part of the bark until it all comes out. Your whistle should be hollow all through. Cut a little notch about 2 inches from the top. One-fourth of the way from the bottom of the whistle cut a round hole.

Then half way between the first hole and the bottom, cut another hole.

like this

Split a one-inch piece of willow wood length wise for a little round piece of wood like this:

Push this into the end of the whistle that you play, that's all.

The longer you make the wood the more holes you can make therefore the more sounds you can make.

GAMES TO PLAY OUT OF DOORS WITHOUT INSTRUMENTS

1. Play the marching game or follow the leader. Vary the tempo **with** speed, body movement, use of hands, etc.

2. Act out things you see. See if the other children can guess what you see.

3. Try to imitate bird calls.

4. Repeat the things you see in rhyme.

As a climax to your outdoor adventure have everyone collect something from the out of doors and make a band. It is surprising how many different beats, sounds, and expressions one can experience.

IN SUMMARY

In experiencing the variety of sounds that are in the out of doors, the educational factors involved are numerous. To be creative is both a rewarding and satisfying experience one a child will remember long after the period is over. Let the children enjoy the real feeling of music in the out of doors, letting nature be the orchestra and each student part of the performance.

MUSIC GOES ANYWHERE

Music goes anywhere only when you realize yourself and the world around you as potential instruments. Most of us tend to think of music as something we listen to over the radio or on records. But by connecting music with the real world and by developing an awareness of pitch, intensity duration and tempo you may be able to introduce your students to a larger world of music, one in which they play more of an active role.

Whether your school is in the city or in the country, the minute you step outside you are surrounded by a world of sound. Usually we are too pre-occupied, or immunized, to really stop to perceive just what we are hearing. Are the sounds pleasant or un-pleasant? Can you locate their sources? Are they natural or man-made? Are they occuring in bursts or in repetition.. Are you hearing anything that you've never heard before? Can you imitate it?

Most of my teaching is done with children I see only once a week, strictly for a musical experience. You are lucky in that you can do music whenever and wherever it comes up during the day. And once you find yourself really listening for music, in whatever form it appears, I think you'll find music becoming more and more helpful in your teaching.

The strongest element of music to children is the most primitive element; rhythm. Once a child catches the rhythm of an action or a series of words that action or those words are his forever. ('Thirty days hath September, April...') Many handicapped children are out of rhythm with the world around them and sometimes with themseves. Helping them find their own rhythm and then discovering the rhythms of their enviromment can be a slow task, but once accomplished you will find it **permeates** almost all areas of the child's learning experiences.

The following are some activities that I use to help the children become more aware of the world of sound around them. Included are some suggestions from a camp counselor at Twin Valleys who shared them with us at an Outdoor Education Conference this summer. The source books listed at the end are invaluable gold mines of ideas and activities for those lulls in the day, when everyone wishes they were doing something else, including you.

Whenever possible, I bring my class outdoors. We all enjoy it better and find a great deal of stimulation from the surroundings. But, as I said, music goes anywhere.

Listening Activities

1. Take a walk through the school or outside. Record or remember what sounds you hear. Are they man-made, natural, or machine made? Are they pleasant or unpleasant? Discuss noise pollution. The Sierra Club has some people working in this area and may have materials for distribution. Start a campaign to reduce noise pollution in your room or in school.

2. Locate the source of sounds you hear. Discuss sounds which can be heard by some animals and not by humans and vice versa. Look for recordings of animal sounds (bird calls) heard through sound microscopes. Discuss sound waves. How are they similar to water waves, etc. Can you see sound, or feel or taste it? How do you know it is there, etc.

3. Discover what sounds you can make with your hands. Imitative exercises add concentration and follow-the-leader structure to the game. Make up sound canons (rounds). Explore other parts of the body as sound instruments...with caution.

4. Make up nonsense vocal patterns. Do them in canon. Contrast the dynamic levels, the tempo, the pitch. Accompany with body instruments.

5. Make up a simple plot for a story (e.g., a monster carries off the princess, the prince saves her), then retell the story in nonsense language. Let the voice level and animation give meaning to the action. Accompany with any kind of sound making instruments you can find.

6. Begin a beat, or just a series of sounds with a drum or with your hands. Direct everyone to move until the sound stops. Give varying directions when the drum stops, e.g., form a circle, find a partner, hop on one foot, etc.

7. When you hear a sound, generally when outside, invent a story around the sound. A plane overhead is carrying hi-jackers to Cuba, etc. A squaking bird has just found his nest oveturned.

8. Record the space in between lightening and thunder, between when you hear it, etc. How long you can hold one tone.

9. Record what you hear in some part of the building, or outside. Ask another part of the class to identify the sounds you recorded. This is a favorite.

10. Take objects from nature and see how many ways they can be used to produce sound. Make an orchestra of natural instruments. Which ones are percussive, which melodic? Which can get more than one pitch and why?

11. Make a recording of sounds you find pleasing or exciting. Then put them together in a preferred order, or an order which grows from one point to another.

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Composition Activities

1. Block out a large area of dirt, or paper, and divide it into equal squares. One person is the conductor. When he points to your square you must play or sing your instrument or particular sound. Go horizontally, then vertically, change tempo. Collect the markers and everyone throw again and listen to your new song.

2. Making instruments is a great introduction to sound. There are several good books out with straightforward directions and readily obtainable materials. This is often the answer for the class that thinks music is baby stuff. Be sure you aim for an instrument that will make not only a pleasant appearance, but also a good sound.

3. Take a series of related words (maple, oak, mahoghany, pine). Ask everyone to repeat the series until you hit upon a good rhythmic interpretation. Don't be afraid to slightly alter someone's suggestion, subtlety. Work this into a round. Alter the dynamic level, the tempo. Put a second pattern underneath it (trees, trees, giants among men). Get into choral speaking. Use parables, mottoes, commercials, poems, etc. for source material.

4. Using simple drawing to represent the instruments you have available, draw a symphony. On a long piece of paper, let each child draw the instruments in a different order, or combinations. Unfold the papers gradually each person playing the instrument as he sees it appear on the sheet.

Movement Activities

1. Anything you want memorized, let the children move to the rhythm of it and it will be learned much quicker. Once the body understands it, the mind will catch on easier...months of the year, etc. Make a circle and clap the sound of the syllables while walking a basic beat.

2. Imitate the drum or the hand sound. When the drum is fast, you move fast, when slow, move slowly, etc. Refine this so that the children recognize the three basic movements and their relative sounds, skipping, running and walking.

3. Tell stories and let the children pantomine them out. Use events from nature, such as a storm arising. Some are the rain drops, some the sun disappearing,some the wind, getting more and more turbulent,some the trees and flowers being beaten by the rain, etc.

4. Imitate different kinds of animals. Notice the differences in tempo in particular. Slow notes are very hard for young children to move to unless they have something very concrete to be imitating, an elephant.

5. Memorize a set of easy activities, or movements. Then perform them in two groups in canon. Let some observe to see how nice it looks.

Source List

1. Co-operative Recreation Services, Radnor Road, Delaware, Ohio. They have a whole series of great little song books, play books, stunt, hobby, ancient games, etc. Each book costs only about 30¢ and when brought in quantity, even cheaper.

2. A Rocket in Your Pocket

3. Sally Go 'Round the Sun, Edith Fowke, McCelland and Stewart, Toronto

4. A Pocket of Poems

5. Music Recipe Book, Educational Development Center, Cambridge, Massachusetts (for making instruments)

6. Lively Craft Cards, Peter Williams Mills and Boon, for making instruments.

7. Music, Movement and Mime for Children, Vera Gray and Rachel Percival, Oxford Press.

8. Music for the Handicapped Child, Juliette Alvin

9. The Slow Learner and Music, J. P. B. Dobbs, Oxford U. Press

10. Great American Folk Songs, Peggy Seeger

MUSIC IN THE OUT OF DOORS

By: Penny Schweitzer

A Few Thoughts on Sound and Rhythm

We live in a sea of sounds, some that annoy us, some that soothe us, and unfortunately many that we grow immuned to. Music should not be taught as a half-hour lesson once a week, but as a part of the child's every day life. When teaching music, why is it necessary to work with compositions that have already been written, instead of original and creative works composed by the children themselves? Music is too often ineffectively taught by introducing notes, key signatures, and many other technical terms. Sounds and rhythms make up music and activities which provide the direct involvement of the child will be our most effective teaching tool. Children and sounds go together and a child has an unbelievable creative talent in adding to them. Imagine all the different rhythms a group of children would hear as rain drops hit the ground or the pleasure derived in imitating different bird calls. Music involves not only listening, but experimenting with sounds. Nature certainly has the capacity to help the child create and often provide the starting point in developing perceptive qualities to the world we live in. To give music a real meaning, children need to be aware of sounds and through this interest we can educate them.

Moving music outside will turn any program into a means for creative expression, as well as endless moments of pleasure. There is no better place than the out of doors to reawaken our sensitivity to sounds. One can create rhythms from the pulses of living things around us, or share the feeling expressed in the chirping of a baby bird. The more a child is exposed to activities involving his senses in working with the out of doors. the more he comes to know, use and appreciate that which surrounds him. Through nature a child is exposed to learning through the excitement of discovery. One can offer him immeasurable possibilities for creating music from natural sounds. The child's imagination begins to expand seeing how many different noises or rhythm patterns he can make with two sticks. One is immediately alerted to the similarities and differences in sounds walking in the forest or walking along a sidewalk. What teacher can come up with a more natural way of introducing crescendos than having a child imitate a siren?

Rhythmic movements, imitating sounds, and composing nature symphonies provide the child with concrete experiences and understandings of the world around him. Music can be fun and perhaps the teaching of technical terms will be much more effective when they arise out of a gradual understanding of working first with basic sounds and rhythms.

Suggested activities and ideas

Listening

1. Silent hike - all human sounds diminish to silence. The children are once more like primitive man, listening for clues and distinguishing among the various sounds. Encourages the child to open his ears and begin to hear all of nature's secrets.

2. Experimenting with objects - taking an object and seeing how many different sounds a group of children can produce with it. Examples: taking a piece of bark and swinging it through the air, hitting against a stone, breaking it, peeling it, dropping it, etc.

3. Exploring our co-existence with sounds - taking a walk through a forest and comparing it with a walk through the city. Writing down those sounds which we find pleasing and those sounds which disturb us.

4. Distinguishing among types of sounds - first try to note what is making the sound, then divide into categories such as natural, man-made or machine made.

5. Inventing stories - as you hike along, pick out a sound and tell the others about it. Example: animal running through the woods to protect himself from the hikers. Introduces child to the feelings expressed in sounds.

6. Inventing stories - opposite from above. Invent story first and try to produce the sounds. Example: walking slowly or running. Camping out and sizzling bacon (stone rubbed in circular motion on metal). Child begins to imitate sounds.

7. Discovering voice ranges - what animals would make altos (birds), what animals would provide bass notes (frogs). What sounds would be good for background with repetitive sounds.

8. Recordings - make a recording of various sounds during the day and compare them to a recording of sounds during the night.

9. Timing sounds - introduce duration of sounds. Record time of echoes, spaces in between lightning and thunder, etc.

10. Noting effects on sounds - listen to the differences of walking on different surfaces - gravel, grass, concrete, etc.

Making Instruments

1. Using objects - create their own instruments from materials found in the forest. Examples: sticks, drums, objects that will rattle.

2. Introduce concept using instruments
    Long and short sounds
    -which one plays the longest, etc.
    -what techniques make the sound short,etc.

    Loudness
    -which produce more noise, why?

    Pitch
    -which instrument provides the highest tone, etc.

Composing

1. Working with vocal sounds - make a piece of music with words associated with a subject. Example: summer - heat, rain, drizzle, sunshine,etc. Vary the sounds of the words, make loud, soft, drawn out, etc. Arrange in a choral speaking activity.

2. Drawing a piece of music - feel the texture of an object in the forest and paint that texture on paper. Devise a melody line to follow the texture form. Invent different melodies for different objects in the forest. Possibly add words about the object.

3. Discovering the scale-take bottles and experiment with different note tones and devise a scale using different water levels in the bottles. Play melodies by blowing into bottles.

4. Composing with instruments - each person find a noise making device. Using small groups, have children devise order of noises, repetition of patterns, etc. Peform for other groups.

5. Nature symphonies - using a tape recorder, record the various sounds, developing order and rhythm.

Movement to Music

1. Marching to definite rhythmic patterns.

2. Musical pantomines - act out the feelings being expressed by certain sounds or pieces of music. Their sensitivity to sounds being produced will be reflected in their movements.

3. Co-ordinating body and mind movements - singing a song and moving on certain action words. Or moving up and down while singing a scale. Provides a clearer understanding of words in a song.

4. Acting out sounds being made. Examples: wind blowing, get the feel of the sound, and build child's expressive qualities.

5. Folk-dancing and square dancing and Modern Dance - each developing a sense of rhythm.

6. Acting out - using some kind of instrument, have child go through actions. Example: growing a flower - using low rumbling notes as seed popping through soil. To a gradual climb of light airy notes when flower in full bloom sways with the breeze. (Piano is excellent instrument and one does not need to know how to play.)

Songs

1. Working with words - have children make up words about their experience outdoors either hiking, camping, etc. and put the words to a familiar tune such as Row Your Boat or Twinkle Little Star.

2. Use songs as introductory device - help introduce pictures or poetry or even compliment a history lesson. Songs are reflective of different periods in history or social classes and help broaden child's understanding of lesson.

3. Exploring melodies - unfolding of rhythmic patterns. Noticing repetition of notes. Have children beat out the basic patterns (using homemade instruments) each time they occur throughout song. This will enhance listening ability.

4. Chanting Poetry - pick up the rhythm of a verse. Also elaborate on certain sound words changing tone of sound.

In Summary

It is important to note that each educational experience should make the child more aware of what is happening around him as well as making him aware of his own potentials. Creative experiments with sounds and rhythms are a small part of music, but a vital part for basic understanding. In the out of doors the materials needed for creative exploration are countless and will certainly enrich any music program. Before reaching for a music book, consider the possibilities offered, the enjoyment, and the tremendous learning experience involved when teaching music as a response to life itself.

CREATIVE DRAMATICS IN THE OUT-OF-DOORS

by Carol L. Reichert

I Definition of Terms:

A. Creative Dramatics A group activity in which meaningful experiences are acted out by the participants as they create their own dialogue and action under the guidance of a leader.

B. Outdoor Education

1. A technique by which children explore their environment and gain greater knowledge of it.
2. A method by which children can learn about the world in which they live, and gain some practical experiences in dealing with it.

II Uses of Creative Dramatics In the Out-of-Doors

A. As a tool of the curriculum

1. It can be used to enrich any area of the curriculum.
2. It can serve as a bridge by which to integrate the curriculum.

B. As a technique of free expression

C. As a technique of socialization

D. As an opportunity for positive reinforcement

III Suggested Activities

Creative dramatics in the out-of-doors can be an effective tool in any area of the teaching experience. It may prove especially effective in the teaching of concepts and attitudes a traditional problem area for teachers and students alike. The following list represents only a few suggested activities.

A. Creative Dramatics In the Out-of-Doors As a Tool of the Curriculum

The following suggestions are purposely not listed under subject areas because most of the concepts, attitudes and skills which children need to learn are interdisciplinary, and creative dramatics is an interdisciplinary technique.

1. Time Concepts Have student form a human time scale to demonstrate time periods and a human time line to demonstrate chronological sequence.
2. Distance Concepts Have students form a human distance scale by which to work out equivalent and comparative distances.

3. Map Skills Building on concept #1 and 2, student can build human maps. They can become contemporary or historical locations and events. This technique can also be used to show distances and positions of the various parts of the Solar System.

4. Equal and Unequal These concepts can be graphically demonstrated on a see saw. The equal or unequal distribution of weights creates balance or unbalance. This technique can also be used to set the stage for equations in Algebra.

5. Set Theory Classification and grouping of students as well as of various things from around the school.

6. Fractions The students can construct human fractions, which can be reduced, added or subtracted.

7. Concept of Height A student can identify with height, by means of a kite, which represents him, flying through the air.

B. Creative Dramatics in the Out-of-Doors As a Technique of Free Expression

The following suggestions focus on the child and his feelings about himself and the world around him, as well as the expression of those feeling.

1. Self-expression The emphasis is upon having the child show rather than tell, how he would feel and/or react to a certain set of circumstances, i.e.: "Today is your birthday and no one seems to remember. How would you feel? How might you react? Show me."

2. Expressing the feelings and reactions of others The emphasis is upon having the child project himself into the situation of another person, either historical or contemporary, and feel and react as that person. "How do you suppose George Washington felt at Valley Forge? How might he have reacted? Show me."

3. Expressing the feelings and reactions of other living and and non-living things The child is asked to express himself as a type of animal or plant in a certain situation. He may be asked to express himself to or as an inanimate object, i.e. "Relate to that rock in such a way that you give us a feeling about it or show us something about it."

C. Creative Dramatics in the Out-of-Doors as a Technique of Socialization

The following suggestions are skills-oriented and are focused on the child's ability to relate to others in the world around him. These suggestions may prove especially helpful to the culturally deprived and the emotionally disturbed child, whose early training may have been incomplete or deficient in these areas.

1. The use of the phone book and the phone booth--How to look up a number---How to get Information--How to get Long Distance.
2. Relating a series of events in proper sequential order.
3. The proper use of a police box or fire alarm box in an emergency.
4. The ability to give and follow directions.
5. First aid and playground safety.
6. Gameship and sportsmanship.

D. Creative Dramatics in the Out-of-Doors as an Opportunity For Positive Reinforcement

Positive reinforcement is an important part of all of the above suggestions. The child must be made to feel that whatever he does is acceptable and praiseworthy. Creative Dramatics must always be a failure-proof experience for the child. Children need the appreciation of their peers and adult figures. The more they get, the freer they will be to express themselves, and to make the most out of creative dramatics in the out-of-doors.

IV Suggested References

A. Creative Dramatics

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SENSORY AWARENESS

SENSORY AWARENESS THROUGH OUTDOOR EDUCATION

By: Carin Farquhar, Ann Savage, Dan Mulholland,
Kristen Loffler and Pat Jordan

"If facts are the seeds that later produce knowledge and wisdom then the emotions and the impressions of the senses are the fertile soil in which the seeds must grow." So states Rachel Carson in The Sense of Wonder. The use of the five senses to clarify, define, explain,and perceive the environment must be developed very carefully in young children. Hammerman and Hammerman feel that an acquaintance with the earth is a basic aspect of a child's existence. Not only does each sense need to be separated from the others to be specifically studied and practiced, but each must be related to the others to further appreciate the world around us. In the end,after each of the five senses has been worked on separately, they all, or as many as possible, need to be tied together to solidify the meaning or value of each experience for the child. When a child is working with his senses, the situation he is in is one that fosters imagination, a willingness to try, to express his thoughts ~~and~~ feelings and to share them with others as an idea, an answer, a thought is rarely incorrect. Every thought and question of the child can be used, even if reworked, to make the experience more meaningful for all involved. Hammerman and Hammerman also state: "It is almost axiomatic in education that subject matter perceived by more than one sense will make a far greater impact on the learner." This brings to mind the old Chinese proverb: I hear, I forget; I see, I remember; I do, and I understand; and stresses the importance of using the senses in practical situations and exercises in the elementary school.

SENSORY AWARENESS

I. Definitions

   A. Consciousness of our surroundings through the use of the five senses - taste, touch, sight, smell and sound

   B. Perhaps Sammy Ives definition of creativity would apply. Redefine or reorganize, with insight, that which is known in to a product that the person who does it understands and is significant to himself.

   C. Your definition after you have used the material here plus your extension of it.

2. Curriculum Enrichment

   A. Concepts

      1. Experience increases awareness.
      2. Use of your senses can help you know the world about you.
      3. Sensory awareness is a skill needed in all areas of life.
      4. Enjoyment through the senses can be an end in itself.
      5. [illegible] individual sense should be developed to its fullest.
      6. Sensory awareness is a motivating force for creativity.
      7. Development of sensory awareness contributes to a positive self image.
      8. Through sensory development you influence and improve the ability to categorize and predict.
      9. The out of doors is a textbook that children have fun learning to read. (a) The vocabulary may be rural or urban; (b) Teachers will enjoy teaching children the vocabulary; (c) Each page may differ in size and content.

B. Method

1. Period of motivation to spark interest.
2. Free the student so he can be receptive to the sensory experience.
   a) Take part in the activity with the students so they will feel comfortable.
   b) Use a few responses you are trying to elicit from the students.
   c) Don't name the birds, plants, trees, building types. Use descriptive words to call attention to them. (Look at this little feathery plant or look at that tall skinny building.) This technique will free the student to point out something he notices. It's all right if you don't know the particular name of the plant, animal, building or food you are sensing.
   d) Provide for a period of sharing
      1. How many sounds did you hear?
      2. Does this leaf have a smell when you crush it?
      3. How does the grass feel when you lie down in it?
      4. How does the grass look when you put your head down and look across the grass or through the grass.
      5. What was it like when you hugged the tree?
      6. What does the shape of the building, cloud, tree or flower remind you of?
      7. If you were a giant looking down from ___________ what would you see?
      8. If you had x-ray eyes and could look beyond that big building over there what would you see?
      9. I wonder what this little fellow likes to eat? This type of question can not have a wrong answer. Even the most shy or the very tough student can be free to answer this type of question. He can be creative, he can learn, he can become sensory aware.
   e) Provide for an extension of the out door experience
      1. Reference material (The student can look up what he has included on the "clue chart" and identify what he has discovered.)
      2. Materials for recording or displaying samples brought back.

C. Experience

The following sections are examples of experiences that can be used to develop each of the individual senses. These lists may be expanded with your own interests.

TOUCH

1. Inside the classroom, have the children blindfolded and mitten and then try to identify objects placed on the counter or desk, remove mittens, repeat; remove blindfold, check identifications. Repeat this activity outside with common playground or yard articles.

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TOUCH (continued)

2. At home, walk barefoot and blindfolded from room to room describe (to a following scribe) the changes in floor coverings and whatever else is stepped on including the dog's tail! Report to the class.

3. With a selection of materials gathered outside have the child gently stroke an object against the face of a second blindfolded child who must try to fully describe, but not necessarily identify, each object and the differences between objects.

4. Walk barefoot from sidewalk to grassy area. Describe changes felt by feet.

5. Sit with barefeet or hands dangling in running water. Fully describe all feelings and emotions.

6. Touch a tree blindfolded and write down every word or expression that comes to mind.

7. Walk barefoot along the bottom of a small shallow brook, trying not to look down at your feet too much. Describe what you feel (even pain).

8. Lay down on the grass, face down. Describe what your knees are feeling, what your tummy feels, what your toes feel.

9. Give a blindfolded child a box of assorted items gathered outside, several of several different textures. Have the child sort the materials into separate piles by feel.

10. Carefully clothed, lift your face, with your eyes closed, to a gentle rain. Try not to think, just feel. Then go inside and try to express your feelings and emotions.

SOUND

1. Trace the path of the sound. Where did it come from?

2. Twist your body in relation to the sound.

3. Hear some sounds on a continum loud to soft, high to low.

4. Pretend.

5. Theme words - harmony, change, etc.

6. If you don't know the sound and wish you did jot down what you can about the sound and look it up when you have access to reference material.

loud	soft	musical	distant	near	disturbing	pleasant	duratio

These charts can and should vary.

SOUND (continued)

7. Stand in a given area and listen.
    a. Count the number of sounds you can hear. Close your eyes for a few moments.
    b. Cup your hand behind your ears (like Dumbo Ears) and then turn in a circle.

8. Tap on a wood pile with a stick or a stone. See if different size logs sound different.

9. Rub two blocks of wood together. See how they sound. Put glue on the blocks and dip them in sand. Rub them together when they dry. Glue various objects found on the playground and see if it changes the sound.

10. Take a small box out doors and try moving the box in various ways with like items in the box. Vary the size of the box, does anything happen. Vary the items. Vary the container. Use items found in a given area. Vary the size of the area if the activity is used more than once.

11. Acorn whistle. Blow across the cap of an acorn in a fashion similar to blowing across an empty bottle. Place the acorn between your first two fingers. Your fingers should cover a portion of the acorn. Place your nuckles to your mouth and blow. If you can do it you are a member of The Acorn Whistle Club.

12. Make Willow or Balsa Whistles. The directions can be found in many books, one source is Childcraft Encyclopedia.

13. Can you hear through the wood? Put your ear on your desk or a table and run your hand on the bottom surface of the board.

14. Sit still on a day when the wind is blowing in gusts. Can you tell when the wind is coming? Can you tell where it is going.

15. Take a tape recorder out doors and record the sounds that the class is listening to. Use these sounds in various ways when you come back to the classroom.
    a. Paint using various nature brushed such as flowers, grass, bark and many others that students will think of while they listen to the tape.
    b. Nature ballet
    c. Background for a skit (Put various objects on an overhead and cast them on a sheet. If you use fern, grass, branches, the effect is quite moving. This adds another dimension to go with the sound of the tape.)

16. Use figures of speech to give a new outlook on the sound.
    a. analogies
    b. metaphors
    c. similies
    d. allegories

TASTE

Of the five senses, hear, touch smell, see and taste; taste depend more on the other four than any other. A few examples will make this clear.

Would you ever: taste something that smelled bad.
taste something that looked terrible.
taste something that made noises.
taste something that wiggles when you touch it.

I have tried this with fourth graders and found this to be true. They want to first see, smell, touch and listen before tasting.

I will list some simple activities to develop the taste sense that can be used in an urban or rural area. Before trying any wild food plants check each one carefully with someone who is competent in that area. Some may be harmful.

1. Blindfold partner. Ask him to identify drops of different liquids by their taste. Place drops on tip,back and sides of tongue. May use lemon juice, sugar water, salt water, soda water, vanilla in water, etc.

2. Blindfold classmate. Dry tip of tongue. Drop some sugar on the dry tip. Ask how tastes. Put water on sugar. Ask again. Use other materials such as salt, lemon drops, etc.

3. Blindfold and hold nose. Try to taste difference in orange, lemon and lime. Remove blindfold and place items to be tasted on different areas of tongue.

4. Blindfold, block nose and place thick mittens on hands. Give child something to taste and note the reaction when other senses are not used. Bring back senses one at a time til all are back.

5. Discover where bitter, sour, and salt and sweet tastes are on the tongue by using examples of each and placing them on areas of tongue.

bitter
sour salt sour
sweet

6. Try cooking some of the following things and see how the taste sense is affected by other senses.
- a. Acorn
- b. Sunflower
- c. Common Milkweed
- d. Cray Fish
- e. Frog lets

Again check with someone in the know before trying any of the above. Make sure you do have the item you intend to try.

Acorn Meal - grind dry, raw acorn kernels, mix the meal with boiling water and press out the liquid through a jelly bag. Spread the meal thinly in shallow pans and dry in the sun or in a very slow oven. Use to make bread

Sunflower - Run seeds through a food chopper with small hole plate too prevent the seeds from going through whole. This cracks shells. Dump cooked mixture into water and stir. Hulls float to top. Kernels rest on bottom.

Common Milkweed - Young shoots, up to six inches high, make a very useable vegetable to serve like asparagus, the newly opened leaves can be served like spinach, the unopened flower buds are eaten like broccoli, the young pods are eaten cooked like okra.

Crayfish - Drop into boiling water until bright red. Shell out the meat in tail and eat it. Or shell out tails in corn meal and fry them.

Frog's Legs - Fry them like drumsticks of chicken.

For many many more ideas on cooking from the wild read Stalking The Wild Asparagus by Euell Gibbons.

SIGHT

The following are only a few of the many possibilities to be used in the out of doors to develop the sense of sight.

1. Lie down on the ground and observe all that is above you. Note variations in color, size, and shape of clouds, trees, buildings, birds, etc.

2. Confine an area of ground (with a hoop shaped hanger) and observe everything in that area. Compare and contrast with other areas of similar size.

3. Find objects that are similar, examine and note differences. For example stones, cars, clothes, insects, mosses, flowers, etc.

4. Stand in a wooded area and count different trees. The children can predict the number they expect to find before doing the counting. This could also be done using a parking lot or other non-wooded area.

5. Observe a place, plant, or animal over a period of time. Note changes in shape, size, color, composition, and surrounding area.

6. Dig some plants and note relationship of roots and stems, size color, use to the plants.

7. Make measurements of temperature at different depths in the ground or water, note relationship of depth and temperature.

8. Make a perculation test by putting a large tin can minus top and bottom into a dug hole. Press firmly into the ground, pour a measured amount of water into the tin and time the rate of absorbtion. Make conclusions about the drainage of the area.

Sight (continued)

9. Measure children's pace using a 50" tape on the ground and walking its length twice, and dividing by the number of steps taken in 100'. Estimate distances between objects by pacing off.

10. Observe erosion patterns in school, home, or shopping areas, and have children devise solutions to problem areas.

11. Observe the life structure in an ant farm.

12. Examine objects with a magnifying glass; through a prism.

13. Observe things from different points of view, an ant, a tree, a house, etc. Become a tree, ant, house, etc, and write an account of a day's experience.

14. Observe traffic patterns, types of cars, etc.

15. Imagine different types of vision: x-ray, magnifying, looking through a compound eye, etc.

SMELL

The following is a list of several activities making use of the sense of smell that can be used in a rural or urban setting.

1. Crushing leaves and breaking off stems to release the scent of the plant, for example, catnip, mints, clovers, and any non poisonous plant.

2. Wild flower walks or visits to gardens just to use the sense of smell to enjoy the flowers.

3. Cracking open nuts, seeds, berries, and pine cones.

4. Smelling the barks and the woods of trees

5. Have children bury their faces in the grass and just breathe in the smell of the grass.

6. Break open a decaying log on the forest floor to see the differences between a plant that's building up and a plant that's breaking down.

7. Odors are often the evidence of the presence or passing of animals. Skunks, some snakes, wet dogs, etc. all have distinctive odors. What is the reason for this? Also, droppings of animals which can be detected by smell are evidence of them.

8. The smell of the air can tell us many things: rain is coming, we've just had a shower, someone has mowed their lawn or cut their field.

9. The quality of the air in cities can be detected by its odor. The presence of the various pollutants can even be determined.

Smell (continued)

10. Gather samples of pleasant smelling leaves, flowers, and pine needles for making potpourri or sachets. In making potpourri use a jar, perferable stoneware. Alternate layers of fresh flower petals and leaves with layers of a mixture of spices (cloves, cinnamon, nutmeg, orange and lemon peel). For making a sachet, dry the flower petals and leaves on a screen. Then stuff a small pillow or pouch with them. Put the potpourri jar in a stuffy closet and the sachet in a drawer, chest or trunk. The scent spreads to the clothes, linens, or whatever. These natural fragrances are always there then to awaken memories of summer days in a field of flowers or a piney woods.

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PHOTOGRAPHY IN OUTDOOR EDUCATION

by Cornelius O'Connell, William
Gilmer and William Langan

The use of photography can add a new dimension to outdoor education activities and contribute to the achievement of many worthwhile learning activities. Teachers and students need not be experts to obtain good results with the readily available, economically priced photographic equipment. With the new, easy to load, easy to operate cameras, students and teachers can become "experts" by simply reading the directions enclosed with the camera. While almost every teacher has access to a school camera it is often only considered in terms of personal use. As a result the advantages of a camera for school use are often overlooked by educators. Few administrators and teachers ever consider ordering a camera and photographic supplies at budget time. Yet a single camera can be shared by classes and used in a variety of ways.

Study outside the classroom is not adding to the curriculum, but rather a means of implementing certain objectives whereby curriculum becomes the experience of the child. Photography can be used as a motivation and as a tool in learning important skills, concepts and understanding. Many teachers are extending their classrooms to the out of doors to teach those aspects best taught out of doors. Photography can be a medium for bringing the outdoor experience into the classroom for those aspects best taught indoors. Photography lends itself in a number of ways.

1. Students learn to communicate ideas visually.

2. Students learn to think through problems and find ways of solving them.

3. Students gain increased appreciation of photographic arts and are sometimes led to new fields of interest.

4. Photographic activities provide opportunities for students to work together in meaningful ways. The tasks of planning, writing, photographing, using and evaluating photographic projects can be carried out cooperatively.

5. Photography can provide an opportunity for functional practice of basic skills. The production of a slide series and tape recording narration would involve developing an idea, sequential order, written and oral expression, library research and outlining.

6. Students can produce materials for assembly programs or materials to be shown to community groups in explanation of the school program.

Use of Photography in Outdoor Education

Photography lends itself to outdoor education in a number of ways. It may be employed to make extreme close-ups or to bring distant objects closer. A beetle may be dramatically emphasized in a close-up photo. A bird's nest high in a tree can be brought closer through the use of a telephoto lens. Photography lends itself well to recording information for use in reports, or for purpose of comparison. Photographing a certain tree during the various seasons would be an example. Photography can also be used as an art medium to express an individual's feelings about his natural surroundings. Finally, in an effort to understand the immediate school environment it is often necessary to exceed its bounds. Where it is impossible or impracticable for an entire class to make a trip one student or a teacher can report back to the class. A class might be investigating how nature recycles water and how the school community consumes it. A trip, with a camera, to a local water authority, sewerage treatment plant or sewer installation site will be very helpful in answering questions about where the school's water comes from and where it goes after use at the school.

Outdoor Education Activities Involving Photography

The following are brief descriptions of outdoor education activities where photography can be used. Keep in mind that the camera and film are used to enhance and contribute to the achievement of the learning objectives. The use of photography can be distracting when it serves no useful purpose. The teacher will be the best judge of when and where to use it. These activities are only a few examples of what can be done. You will find the best activities to be those that develop out of your imagination, experience and knowledge of your particular outdoor education program.

Activity 1 - Mark and photograph a small, specific plot of grass. Shoot a series of close-ups showing the various components of the grass plot (types of grasses, weeds, etc.). This activity can be used to stimulate and develop observation and research skills by having the children identify the various plants they have observed and photographed. Another set of photos can be taken during the winter if the plot is carefully marked. This leads to many questions. What happened to the weeds? In what way does the grass appear changed?

Activity 2 - The teacher and students can photograph examples of wind and water erosion on soil around the school grounds. The photos can be used in reports as evidence, to show causes and possible remedies and to make recommendations to the school principal. A follow-up photo report can be made after these problems are solved.

Activity 3 - The teacher and students can each photograph their own tree and shrub. A photo can be taken of a tree during each season and a photo of its various parts--shape of leaves, bark, color, etc. to be used for display or in a report. As one student said, "It's easy to understand how trees work, if you have your own tree."

Activity 4 - Photographs of playground equipment can be used to introduce experiments involving a number of science principles. The swing can illustrate a pendulum, the slide an inclined plane and see-saw or teeter-tatter a balance lever.

Activity 5 - Photographs of a large thermometer placed in various areas around the playground can be used to introduce an investigation into the causes of the variation in temperature.

Activity 6 - Photographs can be used in the following activities as a record of: development of nature trails, seasonal changes, weathering and almost any outdoor learning experience.

Activity 7 - Photographs can be used in an inventory of the school grounds. Subjects might include: safety hazards, ground cover, traffic patterns, amount and type of erosion caused by people.

Activity 8 - Photographs can be used for nature trail orientation and instruction.

Activity 9 - Children might try selecting a subject to investigate and report using photography as the only medium. Sample topics might be: How plants serve as shelter for animals; How plants provide nesting materials; Animals of our school yard.

Activity 10 - Don't overlook the many possibilities available if any construction is taking place on the school site. Even if there is no present construction, don't overlook the possibilities that waste materials from the original construction might be buried close to the surface on the school grounds. Your students might enjoy an "archeological dig" to recover the materials. Photos to compare the deterioration or lack of deterioration would be just one use of photography in this worthwhile activity.

A MULTI-SENSORY WALK

by Mark V. Angelo, O.F.M.

Our first contact with the world outside ourselves comes through the senses. These sense impressions are what our minds begin to work upon in order to understand our surroundings. From the educational standpoint--from the viewpoint of acquiring knowledge and shaping attitudes, we cannot minimize the importance of the development of the senses. Unfortunately all too often it is true, that seeing, we do not see, and hearing we do not hear--meaning that we are often unable to interpret properly or sufficiently appreciate what we observe.

It is through specific training in observation or awareness that we are able to use our senses in the identification and interpretation of things. Outdoor education programs can play a unique part in the development of the powers of the senses as sources of knowledge. But more than simply knowing our world, we can learn to appreciate and enjoy it.

The five external senses of sight, hearing, taste, touch, and smell, provide us with diverse ways of knowing things, each one enabling us to get something different from an object. We may use one, several, or even all of them in our search for specific knowledge.

As is obvious, sight enables us to perceive color, shape,configuration, and physical relationships, hearing enables us to perceive sounds coming from the human voice, animals, or from nature itself, such as the wind or thunder, through taste we are able to distinguish the sweet from the sour, the bland from the bitter, by smell we are able to distinguish the fragrant from the foul, the acrid from the pleasant, and finally by touch or feeling an object we observe if it is hot or cold, hard or soft,rough or smooth.

All of us have a natural desire to learn,to know more about ourselves, and the world in which we live. There is no better place to discover it or to understand it than by looking at it as it is, rather than through books or other media. Walking outdoors gives us an almost infinite variety of things to observe. We may take our choice, looking either at the sky, the earth or the water, and each contains a multitude of interesting things. But, we must really perceive them, if we wish to enjoy them.

As we walk through a woodland, we will see many things, such as trees,bushes, plants, and flowers, animals and birds. But what are they in reality? As we look, do we simply see trees, for instance, or special kind of trees? Are they oaks, maple, beech, or wild cherry? We can learn if we observe the leaves with their particular shapes, the bark with its own texture, the shape of the tree itself, and perhaps its fruit.

The same is true of any other object we will encounter. We will recognize it by its size, shape, color,texture, odor, and other qualities, all perceived by our senses, enabling our minds to infer from these qualities what the object really is. Obviously, only by utilizing the senses to their fullest extent do we reach the depth of understanding we are capable of achieving.

In a sense, this has special meaning for the emotionally handicapped. All too often they are taken up with themselves, and exposure to outdoor education is perhaps one means of helping them to overcome a withdrawal into self. Interest and curosity are fostered by the tremendous variety of things, both living and non-living which are found in nature, and surely there must be something that can arouse their interest.

Once interest can be aroused, perhaps the desire will come to know and understand his surroundings. There is the possibility of arousing empathy, thereby enabling him to project himself and his feelings into his surroundings, become identified with them, and deriving pleasure and enjoyment from the experience.

Perhaps this might be the means of leading him to a fuller appreciation of beauty in his surroundings. Less self-centered, he might be able to find some release from the tensions and anxieties which beset him, and be able to be brought back to a more stable outlook on life.

A PIAGET APPROACH TO FOUND OBJECTS

by Edith Marks

Introductory Notes

Piaget's developmental protocols and experiments become an important tool in the education of the emotionally handicapped child. The Piaget approach provides access to the development of intelligence, through a series of experimental approaches. Each experiment has been carefully analyzed by Piaget into several developmental stages. Using a combination of Piaget's experiments and similar experiments, along with the stages, it is possible to cut through rote teaching and rote learning.

Knowing the level of a child's understanding adds immeasurably to the creative teaching, so often necessary in working with the emotionally disturbed child. For example, one of our girls showed steady improvement on one of the standardized arithmetic tests. Her last testing showed a score of 3.4, which should indicate comprehension of mathematical concepts. Nevertheless, when we worked with her on certain Piaget tasks, we found little or only vague comprehension. What happened was, of course, what happens so often with the disturbed child. This girl has learned to add, subtract, multiply, and divide by rote,and could even handle simple problems, but she had not yet achieved an understanding of ordination and cardination. Further, we found that she was using her memory defensively, to avoid confrontation. Antidote - Piaget's experiments.

Piaget provides the tools for determining the developmental level a child has reached. In addition to understanding what the child knows, the wealth of experiments that Piaget produces provides fertile ground for improvisation and learning experiences.

In this workshop we are exploring several examples from three of Piaget's books, The Child's Conception of Number, The Child's Conception of Space, and The Child's Conception of Physical Casuality. The attached sheets give instructions on setting up experiments fashioned after original Piaget's experiments. Developmental stages are indicated in each experiment.

However, the teaching and learning aspect of the concept is not completed from one experiment or one session with young children or with children suffering learning handicaps. It takes many different kinds of experimentations with many different types of materials for children to understand the operation. And here is where the concept of outdoor education becomes so relevant. As well as teacher-made items that teach and reinforce the concepts, there are many objects that are to be found out of doors that will provide a continuing learning experience for the youngster.

Here are some brief suggestions for out-of-door-learning activities. Once you begin to incorporate the approach in your curriculum of math, science and language arts, you will come up with many more ideas.

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ONE-TO-ONE CORRESPONDENCE: #1

Use twigs and stones, different kinds of grasses, different kinds of leaves, different size stones, candy wrappers, gum wrappers, rings from pop-open cans. Any set of objects can be exchanged with another set.

The gathering of materials with children can be an illuminating process in itself. One group of children may be asked to find all the stones; another group, all the twigs. Or you may incorporate a hard-soft concept while teaching one-one correspondence. For example, one group may find all the hard objects, another group may find all the soft objects, which can then be exchanged. Exchanges can take place on site, or may be brought back to the classroom to be used for other activities such as sorting, classifying and seriating.

QUANTITATIVE SIMILARITY SERIATION: #2

This task determines if the child has an understanding of seriation, if it extends into two or three procedures. The understanding of this task also suggests that the child is ready for simple multiplication. Most young children or children showing developmental lag will need a great deal of experience with this concept.

Gather materials that can be seriated easily. Different sized stones, leaves, sticks all lend themselves to this project. If there is sand available, the children can build ten different sized mounds of sand, which can be called sand houses or castles. Various objects can be developed to go along with the mounds, such as a flagpole for each house, a stone representing a door, or a small piece of wood representing a drawbridge. Be sure that each object added to the sand houses correspond to the size of the house.

Through the guided use of seriated materials, the children will be gaining experience in determining size variation, will be developing their perceptions, and will be gaining a deeper understanding of comparison concepts such as small, smaller, and smallest, and big, bigger, and biggest.

ORDINATION AND CARDINATION: #3

Out-of-doors, the concept of ordination and cardination can be taught concretely using a brick wall. If possible, find a section of the wall that can be lettered in chalk. Mark a row of bricks across from A to J. Trace a ten-step ladder on the wall, so that brick A will be one brick high, and brick J will incorporate the height and width of ten bricks. Then proceed as in experiment #3. The cityscape also offers good material for learning this concept from the rubble pile. With bricks extracted from the rubble, form a ten step ladder, and proceed with questions comparable to those in the experiment. After the children have completed a few of these outdoor exercises with found objects, they will be better able to understand the regularity of increasing size with the same size object, even when the material used is more abstract as with the cards in the experiment #3.

FLOATING: #4

What child hasn't floated a piece of wood in a puddle, building marvelous fantasies of sailing the high seas? Floating experiments lend themselves naturally to the out-of-doors. All you need is a good sized rain puddle. Children should be encouraged to collect as many objects as they can. Have them put all the objects which they think will float in one pile, and all the objects that they think will sink in another pile. Before allowing them to experiment with the objects ask them to give their reasons why they believe a particular object will float or sink. After the children have experimented, put aside the objects which did not fulfill the children's expectations, and ask them again, why it happened that the particular object did not behave as predicted. Following up the outdoor experiment with the #4 experiment will help the child understand the problems of density, when he finds that he can make clay float or sink, depending upon the shape.

CONSTRUCTION OF A STRAIGHT LINE: #5

Any number of objects found in the city can be used to construct a straight line. Playground materials such as balls, same sized stones, sticks, and even children standing in a straight line offer many different means of learning what a straight line is. Using the out-of-doors for further understanding of this concept adds depth to the children's learning, for in the out-of-doors, the child must construct the straight line without the aid of the table edge. If unable to sight, then he will be unable to construct the straight line. A corollary to constructing the straight line once sighting has been established, is to determine which lines are not straight, through sighting a row of buildings, a line of trees, or a line of cars.

COORDINATION OF PERSPECTIVES: #6

A building or a group of buildings which can be circumnavigated will easily fill the experimental-learning situation here. After walking around the unit several times, the child can be asked to draw a picture of what a man in a helicopter might see if he looked down on the buildings; what a man on the X floor might see if he looked out his window, and what an ant might see if he was at the base of one of the buildings. Other methods of using coordination of perspective in the outdoors can be to arrange objects similar to the mountains in Experiment #6, and ask the children to imagine what a beetle would see at different perspectives.

COORDINATION OF PERSPECTIVES: #7

The model village lends itself to outdoor activity. A village can be drawn in the sand, or in chalk in the school yard. Be sure that one village is turned to 180 degrees to the other. Have the children gather materials which will represent houses, churches, trees, etc. of the village. Be sure that each group of children building the village have the same objects. The children copying the village may have more objects than the children constructing the first village, but each group must have representative objects in order to duplicate the first village. Any number of layouts may be developed in this way.

MOVEMENT: #8 (clouds, wind, moon, sun)

Children who are developmentally immature or very young children tend to take an animistic view of natural phenomena. Until a child is ready through his own observation to acknowledge that natural phenomena is caused by physical laws, the teaching of the fact simply is an imposition on his animistic beliefs.

For example, in addition to Experiment 8, you might try asking the child questions about how wind is made. If the children believe that wind is made by trees because they see the trees moving, bring them to an area where there are no trees, and then ask them where the wind comes from.

To help the children understand the sun's movement, as separate from their own animistic idea that the sun is following them, have them chart the sun's position in the sky each hour. Give the children a homework project of continuing to chart the sun until it goes down.

Chart the movement of clouds on a windy day and on a still day.

NOTE: The following sheets are included to give both background and developmental stages on the Piaget approach to learning, and to enable the smooth transition from the classroom to out-of-door learning. It is best to work through the concepts illustrated in eight attached pages, and then bring the children out-of-doors for further learning and experimentation. However, if you are already using Piaget in the classroom, then the extension to the out-of-doors naturally follows.

#1 1 - 1 correspondence

Materials: Pennies & Lollipops

Stages:

1. The child can only compare globally. He cannot estimate how many elements he will have to exchange, although he can handle 1-1 correspondence. However, when sets have been exchanged, he does not conclude that the sets are equivalent.

2. Correct correspondence, but not lasting equivalence.

3. Lasting equivalence. Equivalence has become obvious and logically necessary.

Instructions:

1. Give the child ten pennies. Tell him that you want him to give you a penny for each lollipop. After the exchange is made, ask the child to estimate the number of pennies for six or seven lollipops.

2. Take the pennies and spread them out in a row. Have the child put the lollipops down, but bunch them together. Ask the child if he has more, less or the same number of lollipops. If he is unable to see that there are still the same, make the exchange again.

3. This time, spread the lollipops out in a row, but bunch the pennies up. Repeat above procedure.

4. Find out how high the child can count, and pick one number lower. Give the child all pennies and ask him to give you a penny for each lollipop. Exchange "X" number of lollipops for pennies. Cover the pennies exchanged with your hand, and ask the child, how many pennies are hidden. On the table are the exchanged lollipops, the remaining pennies and lollipops. If a child is at conservation, he will immediately tell you the number of pennies hidden (Stage III), if he is still at the intuitive stage (Stage II) he will have been able to handle all of the other problems except this one.

from: THE CHILD'S CONCEPTION
OF NUMBER, by Jean Piaget

#2

Materials: 10 paper dolls seriated in ten steps, 10 sticks seriated in ten steps, 10 balls seriated in ten steps

Stages:

1. The child is incapable of seriation. He cannot see correspondence, once elements are not directly opposite one another. Elements are chosen randomly.

2. Intuitive or empirical seriation. The child makes an effort to solve the problem but without systematic seriation or cardination. There is hesitant behavior in choosing. The child shows the beginnings of dissociation between qualitative and numerical relations, but cannot conceive of elements in question as being a unit comparable to others.

3. The child can now coordinate ordination and cardination. Seriation becomes a matter-of-fact process.

Instructions:

1. Bring out the ten dolls and ask the child to arrange them by the size; the largest first and the smallest last. If he needs help, give it to him.

2. Next, bring out the sticks, and ask the child to give each doll a stick, but to be sure to give the biggest doll the biggest stick, the smallest doll the smallest stick, and all the dolls in between their right sticks.

3. Repeat procedure with the balls, placing each ball at the head of the doll. (Help the child if he needs it on the first three procedures). (DO NOT HELP THE CHILD AFTER THIS POINT)

4. Push the balls closer together. Ask the child, pointing to #7 doll, which is its ball; repeat procedure with #3, and #5 dolls. Reverse the balls, and ask the child which is the ball that #10 doll will use.

5. Mix up the dolls and pull out #6. Tell the child that all the dolls smaller than this one are going to bed. Ask the child to select these dolls and put them in the box. Hold the doll up so that the child can measure the other dolls against him if he wishes.

6. Tell the child that the dolls which are left want to go out to play. Ask the child to give them their right sticks. After he has done this, tell him that the dolls which have been put to bed are not tired, give them their balls. (Both sticks and balls should be mixed up.)

from: THE CHILD'S CONCEPTION OF
NUMBER by Jean Piaget

#3 ordination & cardination

Materials: A set of ten cards representing 10 units, forming steps, i.e., A = 1; 2A = B; 3A=C; 4A = D; 5A = E; 6A = F; 7A = G; 8A = H; 9A = I; 10A = J

Stages:

1. Seriation is global and relation between ordination and cardination is not understood beyond three or four.

2. Intuitive seriation give a correct result after trial and error, and the relation between ordination and cardination is understood, provided the order is followed, but not when the cards are mixed.

3. Relation between cardinal and ordinal value understood even when cards are mixed.

Instructions:

1. Ask the child to make series himself. If he needs help, give it to him. Ask him to count the cards when they have all been arranged.

2. Ask him how many of A will fit into B, C, D. Keep asking the child until he understands the principle. Demonstrate to the child that by placing A on the bottom and top of B, it goes in twice.

3. When the child appears to understand the principle, pick a card at random, and ask him how many times A will fit into this card. If he seems to be having trouble, have him count the cards again.

4. Mix up the cards, and pull out several at random, asking the child, how many A's will fit.

from: THE CHILD'S CONCEPTION OF
NUMBER by Jean Piaget

#4 floating

Materials: Small wooden boat or piece of wood; basin of water

Stages:

1. Floating is explained in animistic or moral terms

2. Boats float because they are heavy

3. Boats float because they are light.

4. Begin to understand the relationship between boats and water: intuition of density and relationship of weight to volume.

Instructions:

1. Ask the child if the boat will lie on the water or sink to the bottom. Have him give you reasons for his answer.

2. Hand him a pebble, and ask him if it will lie on the water or sink to the bottom. Have him give you the reasons for his answer.

3. Repeat procedure with a piece of glass. After the child has been questioned and gives his reasons, ask him to put the objects in the water, and again give the reasons for what happens after he observes the results.

4. Ask the child why boats stay on the water, sailboats, rafts, ocean liners?

5. Make boats out of clay. Ask the child if these boats will float? Now use a lump of clay, the same size as that from which the boats were made. Have the child drop the lump and the clay boat in the water. Flatten out the lump of clay; now have the child put it in the water.

6. Show the child two equal volumes of wood and water. Ask him which is heavier. Ask if equal amounts of stone and water are heavier?

7. If child says that boat stays on water because it is heavier, give him a smaller stone, and ask if that will stay on the water. Let him try it out.

8. Take a penny and metal lid. Ask him if they will float. Have him give reasons before the demonstration.

from THE CHILD'S CONCEPTION
OF PHYSICAL CASUALITY
by Jean Piaget

#5 Constructive of the Projective Straight Line

Materials: 10 or 15 small sticks which will stand upright

Stages:

1. Child is incapable of forming a straight line even when it runs parallel to the table.

2.A. Child can form a straight line when it runs parallel to the table, but is unable to do so when it lies at an angle.

2.B. (to-7) Overcomes obstacle of perceptual influence of table through trial and error.

3. (7+) straight line is constructed no matter where it is through the child's sighting along the trajectory.

Instructions: (square, oblong and round tables are to uses)

1. Child is told that each stick represents a telephone, and that these must be arranged to form a perfectly straight line running along a straight road. The first and last posts are placed in position, equidistant from the edge of the table. The child is told to run them parallel to the table.

2. The first and last poles are placed in an oblique position to the table edge. The child is again asked to make a straight line between the posts.

3. With the round table, the posts are placed so that the line is either a diameter or a chord. Also on the round table, a series of zig-zag lines are constructed. The child is asked to straighten them out.

If the child fails to take aim, place him at different positions and ask him about the advantages and disadvantages of the positions.

The problem here is also one of figure-ground, the ground being the perceptual edge of the table. A child may be able to make an imitative movement by following the edge of the table in forming a line. However, an oblique line will soon determine if the child is actually imitating or sighting. If the child is imitative, he is operating on intuitive mental images; on the other hand if he has arrived at operational thought, he is able to free himself from these perceptual configurations and perform the task by aiming or sighting. The operation of sighting is not just a simple action, but an action of coordinating several points of view. When a child goes beyond the perceptual straight line, he is employing both perceptual and euclidian concepts.

from: THE CHILD'S CONCEPTION OF
SPACE by Jean Piaget

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#6 The Coordination of Perspectives

Materials: Pasteboard models of mountains (3). The green mountain occupies the foreground, to right of child; to the left is a brown mountain higher than the green mountain, and to the rear is a yet higher grey mountain. A small doll.

Stages:

The problem the child has to solve is with the position of objects relative to one another and to various observers, or the same observer in different positions.

2.A. Child can hardly distinquish between his own viewpoint and that of other observers (represented by the doll).

2.B. Some attempts at discrimination.

3.A. (7-9) progressive discrimination and coordination of perspective, but not full understanding.

3.B. (9-12) mastery of perspective and ability to draw perspective.

Instructions:

From position C, a zigzag path can be seen running down the green mountain. From position B, a little rivulet is descending the brown mountain.

The children are shown a collection representing the mountains from different viewpoints, and are also given three pieces of cardboard shaped and colored the same as each of the mountains.

1. The child is asked to reconstruct a snapshot taken by the doll in positions A,B,C, and D. Doll is placed in each position.

2. If the child cannot do this. He is placed in each position, and is told to construct from his cardboard pieces or from the represented pictures.

3. The child selects a picture and places the doll in the corresponding position.

With young children, the egocentric illusion prevents them from reversing left-right, before-behind relations, and thereby rotating the perspectives along with their changing viewpoints. Child fixes upon some kind of ideal, rigid picture. Child then moves into pre-concepts, intermediate between false absolute of egocentricism and complete relativity of grouped projective relationships.

Older children can be asked to reproduce what the doll sees. The child can only discover his own viewpoint, as he becomes able to envisage others. He has difficulty with his perspective because he cannot handle the perception of others.

from: THE CHILD'S CONCEPTION OF
SPACE by Jean Piaget

#7 The Coordination of Perspectives (Model Village)

Materials: Two large sheets of paper on which a village layout is drawn. The sheets are exactly alike. A number of houses and buildings of various sizes.

Stages:

1. (up to 4) Neither spatial nor 1-1 correspondence achieved between 2 sets of objects.

2. (4-7) Child picks out pieces which correspond to those in model and tries to locate them in a similar position, but fails to locate a single position according to a system or references because he cannot multiply the relationships of distance and order along three dimensions.

3. (7-10) The system of reference is gradually built up, first through logical multiplication - left-right, before-behind; begins to understand perspective.

4. Concept of a diagrammatic layout attained.

Instructions:

1. Child is asked to draw the layout on a piece of paper.

2. The child is then asked to replace the objects according to the drawing.

3. The child is given one sheet of paper without any objects. He is asked to reproduce the objects on the other sheet of paper which has been turned 180 degrees.

from: THE CHILD'S CONCEPTION
OF SPACE by Jean Piaget

#8 Clouds (movement)

Stages:

The first three stages show a confusion of moral and physical laws. In the last two stages, physical determinism appears.

1. Magical - clouds move by walking; obey us at a distance.

2. Artificialistic or animistic - clouds move because God or men make them move.

3. Clouds move by themselves, although movement is not explained.

4. Wind pushes clouds, but clouds make wind.

5. Correct determinism.

Instructions:

1. Ask the child what makes the cloud move?

2. Ask the child how he thinks the movement happens.

3. Ask the child if the cloud is alive.

4. Ask the child if the clouds can go where they like.

5. Ask the child if he can figure out why the clouds sometimes go fast, and sometimes go slow.

Note: At stage 2, the child thinks the cloud moves because of double motor control, and also because of external influence. At stage 3, it is the heavenly bodies that make the clouds move. When a child says it's the wind that moves the clouds along, he may be sensing the actual cause of movement. However, he may still be seeing the clouds animistically - that the clouds move from the wind, because the wind is cold.

#8 Clouds (suspension)

Stages:

1. Artificialistic and animistic.

2. Clouds stuck in the sky.

3. Clouds are in the air because wind drives them, or they just glide like birds.

4. Clouds stay in the air because they are lighter than air.

Instructions:

1. Ask the child to explain why the clouds don't fall on us.

2. Ask the child if he knows how the clouds stay up.

3. See if the child can answer whether the cloud is light or heavy.

4. Drop a book. Ask the child why the book does not stay in the air.

5. Ask the child why smoke goes up into the sky.

6. Blow up a balloon and toss it into the air (outside)

7. Ask the child what makes a kite fly.

8. Drop a sheet of paper. Ask the child why the paper falls.

9. Hold a book in one hand, and a piece of paper in the other. Ask the child which will fall faster. Allow child to hold both objects. Drop both objects at the same time.

10. Make an inclined slide out of a piece of heavy cardboard. Ask the child to determine which objects will go down quickest.

from: THE CHILD'S CONCEPTION OF
PHYSICAL CAUSALITY by
Jean Piaget

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URBAN ENVIRONMENT

By: Marian Carpenter

A school yard, exposed as it is to the sun, wind and rain is an exciting place for observing the forces of nature at work.

Birds, animals, and insects are among the wild life that they may be observed.

Ants

More than a hundred million years ago there were ants scurrying about on the earth much as they do today.

Their reputation for industry is widespread being noted in Biblical times when King Solomon gave the advice, "Go to the ant .... consider her ways to be wise."

All ants live in colonies (there are more than 6,000 different kinds of ants). The place where a colony live is called a nest.

Explore your schoolyard in search of ant life. Here are a few things to look for:

1. Do all ants look alike?
2. What do they eat?
3. Do they feed each other?
4. Are all the ants in the colony the same?
5. Can you see signs of different kinds of work being done?
6. What is going on in the nest?
7. Do ants sleep? How do they wake up?
8. Do they take a bath?
9. Did you find a trail?
10. Where did the trail lead?
11. Did you find ant eggs, larvae, pupae?

Would you like to make an ant colony to observe in your classroom?

You will need a nest for them. A shallow, clear plastic box with a lid is a good choice. This type of box can be purchased in a five-and-ten cent store. The lid should fit tightly so that the ants cannot get out.

Place the ants and soil in the bottom half of your plastic container. Tape the lid closed with adhesive tape as a sealer.

The ants have to breathe.
Heat an ice pick or any other sharp object and puncture two holes in the lid of your box. Plug the holes with cotton. The cotton lets the air pass through but keeps the ants from escaping.

You may have trouble with ants escaping from the nest because there are tiny holes you cannot see. If this happens, put your nest in a pan of water. Ants will not go into the water unless they are very excited.

Ants need water. You can add a few drops of water every day through one of the holes. Ants need food. You can drop bits of food through the other hole. Try a drop of honey mixed with water. Try a bit of hard-boiled egg. Try pancake syrup. Try jelly. Try fruit. Try peanut butter. Ants will eat almost anything as long as the food is not completely dry. Ants do not need much food. They are very tiny. One drop of honey can feed 50 ants. Feed the ants only once a week.

Collecting Ants

Ants are not easy to collect. When you uncover them under a board or a rock, they are alarmed and run around in great excitement. Scoop the ants up with a large spoon or pancake turner and put them in a plastic bag as quickly as you can. Close the top of the bag by twisting it into a knot. Then place the bag in a cold place. In cold weather, you can put the bag on a window sill. Or perhaps you may be allowed to use the refrigerator. In a few hours the ants"cool down, and it is easier to put them into a nest.

Suggested Readings

ANTS by Millicent E. Selsam, Scholastic Book Services

THE STORY OF ANTS by Dorothy Shuttlesworth, Su Zan Noguchi Swain, Doubleday.

INSECTS AND SPIDERS - Audubon Aids

THE ANT REALM - Ross E. Hutchins - Dodd, Mead & Co.

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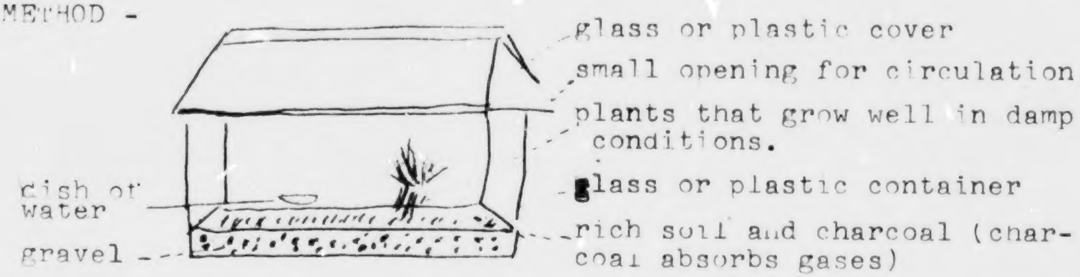
LITTLE ENVIRONMENTS

By: Marian Carpenter

AIM - To prepare a terrarium to be used in the classroom for the study of living things.

MATERIALS - Waterproof container with cover (Plastic is best.); Enough gravel to cover the bottoms; Humus or rich soil; Several pieces of charcoal; Plants or grass seed; Rust proof dish; Salamander or garter snake.

METHOD -


glass or plastic cover
small opening for circulation
plants that grow well in damp conditions.
glass or plastic container
rich soil and charcoal (charcoal absorbs gases)
dish of water
gravel

ACTIVITIES

Plant grass seed - seeds need water to sprout and grow.

a. Plant some seeds in terrarium.
b. Plant some seeds in flowerpot - water when planted and every third day.
c. Plant some seeds in dry soil in flower pot, do not water. Observe by class monitor each day. Repeat progress to class. Record observation on class chart. (Perhaps in picture form.)

We Grow Grass Seed

Day	**Terrarium**	Watered Soil	Dry Soil
3rd	Sprouted	0	0
5th	1/2 in.	1/4 in.	0
7th	3/4 in.	1/2 in.	0

We Want to Know:

1. Can grass seed grow without water?
2. How much water is best for the growth of grass seed?
3. How does grass seed get its water? (Terrarium = morning dew. Watered Flower Pot = rain, Dry Flower Pot - Lack of rain (man must water the lawn.)

Other Activities in a Terrarium

1. What happens when an obstacle is put in the path of a growing plant? Use twigs in terrarium.

2. How does light bend plants? turn terrarium (control - flower pot contains same plant.)

3. To study (condensation) Water Cycle.

4. To observe plants and annuals living under condition which simulate those found in nature.

5. To learn the parts of a plant.

6. To study plant tropisms.

7. Plant seeds at different levels in terrarium - some in sand, some in rich soil. Plants grow best in good soil? Why?

8. Plant different levels of seeds.
Seeds require different times for sprouting.

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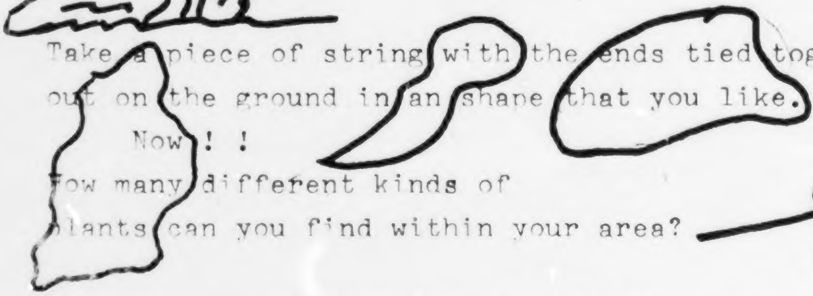
STUDY OF A NATURAL AREA

By: Marian Carpenter

Take a piece of string with the ends tied together and spread it out on the ground in an shape that you like.



Now ! !

How many different kinds of plants can you find within your area?

Pick out one plant. What does it look like?

what color is it

Draw it here →

List any animals that you see in your area ___ ___ ___________

___ _______________________

Look carefully at the soil.
what color is it? _____ how does it feel? ___________

____

how tall is your Plant?

How Wide?

What does it feel like?

How does it smell?

Now dig in the soil for a while and put the dirt in one place.
List all the things you can find in the soil:

animals plants minerals

___ ___ ___ ___

How do all the things that you have seen in your area relate to one another? Do they help each other? Do they need each other?

GENERAL CONCEPTS

OUTDOOR EDUCATION FOR THE YOUNG CHILD (4 - 8 YEARS)

By: June Fuller

Objects of Discovery

All children learn best through first hand experiences. The utilization of stimuli in all sensory areas enhances and increases this learning. Nothing creates more sensory excitement than a projected outing. Is the teacher prepared to provide a concept of concentration for each sensory area? Further, is she prepared to provide this through the child's discovery at the moment of discovery? Can she limit her words to allow time for eyes, fingers and noses to discover?

A maple tree outside the classroom has become a familiar and warm friend (even cities have trees). The class decides to enjoy a snack under the tree. What now?

The sun feels warm.
The shade feels cooler.
How does the shade get under the tree?
The sun sparkles through the leaves.
I hear the leaves - listen.
I see a nest in the tree.
A "helicopter" swirles down.
It goes round and round.
What are they called really?
How many do you have?
The wing is flat.
There's a ball on the end.
It's bumpy.
There's a seed in here.
It's sticky inside.
The seed is hard.
It smells good.
Can you stick it on your nose?

Touch bark, it's smooth, it's rough, it has big bumps, little bumps. Can you put your arms all the way around? It's wet, it's leaking, it's sticky, it smells good.

Now the leaves are green. In a very short time they will be changing color, falling down. Will you be there to discover the changes in your tree? Barren in winter-oh no, little buds are on the ends of the branches. Don't miss the thrilling miracle of expanding buds and unfurling leaves in springtime.

Is your tree like a dandelion? A pine tree? Does it make noises? Does it have a function? Birds, squirrels. Did you ever hear a squirrel in angry chatter?

Try bark rubbings, leaf rubbings, spatter paint around leaves. With colorful geometric shapes paste tree forms. Discover these shapes in nature. Take bark, leaf and branch samples into the classroom. Compare textures,sizes (branches, twigs). Compare samples from other trees. Play number games (get me four leaves). Build structures from twigs and paste. Find picture books, science books, stories,poems, songs. Dramatize tiny seeds planted, sprouting, growing taller and taller. Add your own ideas. The list has no end.

There is no need to go far. The young emotionally disturbed child through the necessity of security should begin his exploration close to the classroom. This horizon can be gradually increased as familiarity and his world of discovery expand. Few 4-8 year old children are prepared for a camp-out. Few young behaviorally disturbed children know their own back yards.

Providing the freedom for the child to discover his world, and following his lead provides motivation and endless curriculum. Reducing this discovery to its simplest forms while separating and enjoying all the sensory excitement available within a "discovery" provides infinite amounts of methods and materials. It is difficult to avoid any area of teaching when creatively scrutinizing an object of discovery. Mathmatical concepts, reading or reading readiness, and the arts are so easily covered with follow-up activities. Language development, perceptual-motor training, visual, auditory, kinesthetic, spatial relationships: how can they be avoided? The curriculum writes itself.

Now, how would you help your class "discover" a mud puddle?

OUTDOOR EDUCATION FOR THE MIDDLE SCHOOL YEARS

By: Ronn Brown, John Ferree, Tom Hyrup, Ted Taylor, and Carolyn Schrier

OBJECTIVES

Learning can and should be fun

The educator is a leader and guide, not a teller

Outdoor education is as important as indoor education. It should extend, enhance and stimulate classroom work. Indoor and outdoor education are complimentary parts of a whole.

Group dynamics are vastly different in outdoor situations. Students and educators can assume different roles so that all my be involved. Outdoor education should present the child with the opportunity to know himself and his environment and to learn and practice new skills.

The school grounds and surrounding communities are a free and/or inexpensive resource readily available to all in both rural and urban settings.

Outdoor education helps the student to learn to appreciate and respect the world of out of doors and his role in it.

Education for use of leisure time is as important as education for a profession. Camping can supply leisure time education.

MAJOR CONCEPTS

Living things are the product of heredity and environment.

The behavior of an individual stems from an interaction of heredity and physical, social and cultural environments.

Government is an interaction of custom, rule, and law.

The economy of a region depends upon the resources, its use of those resources, and technology.

The culture of a group develops out of the interaction of regional, behavioral, and ethnic factors.

The history of a people evolves through an interaction of individuals, groups, cultures, and events.

The universe is in constant change.

Living things are in constant change.

The environment is is constant change

Living things depend upon the flow of energy and materials from the environment for survival.

Living things exchange matter and energy with the environment

Energy may be transformed; but neither created or destroyed. The total amount of energy remains the same.

Living things

What is alive?

What is the role of death in the life cycle?

What is a weed?

Land is the foundation of the community

The environment determines the community (biome)

Communities change (succession) because environments change

Living things compete with many forces for survival

Group living requires cooperation within and between groups in order to maintain an optimum environment

Food chains, webs, and pyramids are determined by groups within the community

Changes in the environment bring about adaptation, species variation, and extinctions

Cells are the basic building blocks of life; the basic unit of structure and function

Certain structural patterns fit certain environments

Reproduction is an integral part of the life cycle.

SUGGESTED IDEAS FOR ACTIVITIES

Adopt a tree

Quadrant and random plot studies

Take one animal and develop a food chain and effects of any breaks in the chain

Map location of trees; estimate age, amount of lumber, size,

Observe symbolic relationships

Animal census

Toothpick birds to show adaptation, camoflage

Collect and press flowers and leaves

Collect and mount seeds and insects

Make clue charts to aid identification

Leaf printing using spatter painting, potatoes, crayons, rubbings, clay

Take a nature hike

Build a terrarium or an aquarium

Listening to sounds and recordings

Nature through photography or sketching

Collect fossils

Stump exploring

Make a nature collage

Field trips to: a fish hatchery, a forest plantation, a zoo, a bird sanctuary, a farm, etc.

Build and observe a bird feeder

Tap a maple tree and make maple syrup,maple sugar, maple cream

Observe road side kills

Study the soil layers

Study decomposition

Study bird migration

Study animal homes

Collect spider webs

WATER AND WEATHER

The environment is in constant change. Environmental change affects people directly and indirectly. Environmental change follows certain patterns; these patterns have various time spans. Some of the most obvious occur in the atmosphere. There are many ways of measuring and studying these changes.

SUGGESTED IDEAS FOR ACTIVITIES

Use a garden hose to study erosion

Test the water for pollution, etc.

Air pollution partical collection

Make simple instruments for a weather station

Take a rain hike

Use weather balloons

Use ballons for air currents

Rocketry

Study stream velocity

Study siltage

Snowflake study

Study thermal pollution

Have a paper airplane contest

Study the effect of pressure on sound

Observe and sketch clouds

Make cloud mirrors

Make a "paint" farm

Make collapsed can barometer

Make and use Beaufort scales

Study echos

SOLAR SYSTEM AND BEYOND

The universe is infinite. It is in constant change. Within the universe theatre are: galaxies, constellations, star, nebulae, planets, moons, asteroids, comets, meteors, man-made objects, radio stars, pulsars, quasars, quarks, dark stars, and cophied variables.

The sun is the main source of energy. Activities of the sun affect us. solar storms, eclipses, auroras,calendars, moon phases, time, etc.

The moon and the earth can be considered as a double planet system - interdependent. tides, seasons, lunar day, navigation, time, etc.

Space has a fascination for man...legends, songs, stories, science fiction.

Activities

Build constellation viewers
Observe star patterns and seasonal changes
Record the phases of the moon
Use binoculars on a telescope to study celestial bodies
Observation of meteor showers and comets
Take a trip to a planetarium
Make scale model of solar system
Build pin hole cameras
Build and use telscopes
Construct a solar oven
Use prisms and make a spectroscope
Measure shadows at different times of the day, during equinox and solstice

Earth and its composition

The universe is in constant change. The earth is in constant change.

Man's study of the earth's structure has helped him to understand these changes in the past, in the present, and their future implications.

The study of earth's structure has revealed certain features such as layers of earth, magnetic fields, behavior of earth quakes and volcanoes, etc.

Oceans are the source of life and are an unexplored frontier. Soil is the basis of the community. The rock cycle, decay, erosion, etc. contribute to the soil.

SUGGESTED ACTIVITIES

percolation test
erosion study
delta formation
cross section of soil
rain hike
slopes at different elevations, similarities and differences
visit a road cut
fossils - collect and identify
soil temperatures
PH of soils and rocks
soil moisture and texture
collecting soil and rocks and identifying
examining materials under dissection scope
field notes of observations
clinometer to measure elevations
compass work
field trip - evidence of glaciation
field trip to quarry, beach or mine
field trip - building arts
new brick compared to old brick
sidewalks - new and old
expose limestone to elements for a whole year - compare with control
look under the playground equipment
heat rocks and drop into cold water
fry marbles and lenses
rocks in a stream

The middle school years are years of great physical and emotional change and growth. An understanding of the changes within himself is vital to the middle school child.

All individuals have certain needs. These needs are established by the structure and function of the body systems.

Living together presents certain responsibilities towards family, peers, and the community.

Growing awareness of self leads to greater appreciation of the environment and dependence on responsibilities toward it.

Learning happens in many ways, from many sources, both directly and indirectly.

Environment affects the way individuals live, feel, and act.

There are constructive ways to use leisure time.

Death is a necessary part of life.

ACTIVITIES

Prepare a meal of health foods
Discuss safety in the outdoors: swimming, camping, etc.
Study large muscle activity through sports
Make a field trip to a farm
Observe the effects of physical activity on the body
How to use wild plants and animals for food
Compare and contrast insect metamorphisis to human growth
Measure height and weight differences in fall and spring by means such as shadows
Use playground equipment to develop muscular skills
Test water and air

WATER AND ENERGY

The universe is in constant change. Energy can be transformed but neither created or destroyed. Life exists because energy can be transformed. Life is negative entropy. Man has formulated certain theories and laws to explain and understand these changes. Matter exists in four states.

ACTIVITIES

How different woods burn, kindling temperature
Rocketry
Observe effects of lightning on a tree, etc.
Cross sections of hail
Catch and preserve snowflakes
Water and wind mills
Field trips to - electrical sub stations, power plants
Freeze water and observe effects
Observe effects of placing different colors of construction paper or cloth on snow and leaving for a time
Trip to construction site to observe insulation, heating, etc.

Trip to boiler room to learn how school is heated
Playground equipment as simple machines
Cabbage juice PH
Water testing
Friction - friction carts, various floors and waxes floor and grass burns
Tree splitting rock
Collapsing a can by air pressure (two ways)
Effect of heat and cold on volume of air using ballons
Beaufort scale
Test car exhaust for visible pollutants
Echos

SCHOOL SITE UTILIZATION

By: James W. Baer, Maureen C. Currier,
Muriel Currier, Jim Finguerra, Wm. Reamer

The following is a listing of activities which may be used by the classroom teacher to teach various subject areas utilizing the out doors. They have been limited to those applicable to the immediate school site. Ingenuity and the actual school site are the only limiting factors.

School Site Utilization - Science

1. Soil testing - P.H. minerals, temperature, type, etc.
2. Make Weather Station.
3. Identify minerals, color, hardness, etc.
4. Examine weather on buildings, wood, etc.
5. Observe and test air pollution.
6. Make terrarium - observe water cycle.
7. Melt snow, make observations
8. Nature Trail.
9. Plants, Trees, Shrubs - study of parts (bark, buds, leaves) throughout the seasons.
10. Clue Charts - animals, plants, etc.
11. Birds - feeders, listening, senses, etc.
12. Observe pavement, sidewalks - effects of climate upon them. What are they made from - cracks, tree roots, wearing away, etc.
13. Develop research into ecological environments in terms of various cycles (food, carbon dioxide, water, etc.).
14. Animal evidence - tracks, homes, droppings, feather, etc.
15. Survey animal population.
16. Shadows
17. Learning to use a watch compass.
18. Studying seeds and their distribution.
19. Mapping plant communities
20. Studying the seasonal changes in nature.
21. Estimate the time by shadow or position of stars.
22. Observation of the Heavens

23. Nature Scavenger Hunts.
24. Moon - times of moon.
25. Observing and adopting a tree for study.
26. Plant a tree, shrub, mini-garden.
27. Check relation of color to heat.
28. Explore with magnifying glasses.
29. Recognize some simple machines.
30. Make compost pile.
31. How do animals differ from plants.
32. Compare birds - bills, shapes, feet, etc.
33. Make collections - rock, seeds, plants, insects, flowers, etc.
34. Web of Life Game - How the various parts are interrelated.
35. Identify leaves and match with the branch.

School Site Utilization - Math

1. Measure the height of flagpoles, trees, buildings, etc.
2. Construct a map to scale using a compass.
3. Observe and list the different geometric designs from the school grounds. Circles (sun, holes), rectangles (bricks, etc.).
4. Measure off an acre.
5. Compare the temperature of different areas of the school site where the sun hits, and where it doesn't.
6. Measure off a square foot, square yard, and rod.
7. Measure distances of various objects using pace-angle method.
8. Measure precipitation.
9. Measure board feet in a tree.
10. Calculate circumferences and diameters of trees.
11. Make and use a clinometer with a protractor to measure degree of slope.
12. Use outdoor situations in counting and tallying (dandelions, etc.

School Site Utilization - Math

13. Make calculations related to erosion by determining the volume material removed and deposited in an area.

14. Determine the speed of water.

15. Measure plant growth.

16. Calculate the number of bricks in a wall.

17. Scavenger hunt for numbers, finding leaves with 3 lobes, etc.

18. Investigate parking lot, etc., to solve the following problems: How many cars, what kind, percentage of total, percent of lot filled, percent of two-door cars, percent of four-door cars.

19. Figure costs - lighting, painting, paving, etc.

School Site Utilization - Language Arts

1. Listen to sounds - write descriptive phrases.

2. Observe and describe natural objects.

3. Poetry with natural objects as basis.

4. Use the senses - touch, smell, sight, taste, hear - then write descriptive paragraph.

5. Write similes or other figures of speech about objects outside.

6. "I was (any kind of natural object).....

7. Describe everything within a given area.

8. Pretend you are a bird or bear, etc., describe how you would feel as you would pass through the area.

9. Write an autobiography of an object from nature.

10. Pretend you have supervision or hearing -- describe what you hear or see.

11. Compare and contrast objects of nature or other sounds of nature.

12. Listen to some moving water. Can you hear sounds that resemble words in the English language.

13. Adopt a tree or other plant and keep a diary.

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School Site Utilization - Social Studies

1. Compare maps to natural settings.
2. Make a sketch map of school grounds.
3. On blacktop - Map of the United States; Compass Directions.
4. Study land formations and drainage on school grounds.
5. Study top soil from various location.
6. Study tree stumps - Living things around it; Make historic events on tree's annual growth; Low cut-different tools; Why cut?
7. Make a diorama using natural materials.
8. Make a study of the buildings on site - when built, why built, why particular material was used, style of architecture.

School Site Utilization - Art

1. Make rubbings (Aluminium foil, crayon and paper) to examine textures.
2. Crafts using natural materials.
3. Photography.
4. Blue prints.
5. Use natural dyes.
6. Paint, draw, etc., pictures of the area.
7. Using natural shapes construct picture.
8. Spatter prints.
9. Printing with natural objects - leaves, etc.
10. Make a crystal garden.
11. Sand casting.
12. Make nature puppets.